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THE UNIVERSITY OF ALBERTA

EVOLUTION OF THE RAILWAY NETWORK OF EDMONTON
AND ITS LAND USE EFFECTS

by



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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF ARTS

DEPARTMENT OF GEOGRAPHY

EDMONTON, ALBERTA

JULY, 1967

UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled Evolution of the Railway Network of Edmonton and Its Land Use Effects, submitted by Hermia Kwok-Yee Lai in partial fulfilment of the requirements for the degree of Master of Arts.

ABSTRACT

This thesis is a study of the relationship between the railway network and urban morphology of the Edmonton metropolitan area. The major theme is to evaluate, through time, the effects of the railway pattern on urban land use.

The initial railway development in Edmonton began in 1891. From the turn of the twentieth century to the outbreak of the First World War, trackage construction experienced a boom period during which the fundamental railway framework of the city was well established. While the general development in the inter-war years was relatively limited, there has been considerable construction of industrial sidings in the years since 1946.

The railway network has played a significant role in formulating the basic land use elements of the city. Its freight sheds and marshalling yards, in particular, have consolidated the sites of the central business district and the South Edmonton commercial-industrial core. Another pronounced effect of the industrial spurs is seen in the distribution of industrial and associated activities.

Before the mid 1940's, freight transportation was monopolized by the railroads. Not until after the Second World War was this dominance challenged by truck movement. With the improved highway systems, trucks have become an important freight carrier especially for relatively short-haul traffic. Nevertheless, the function of the railways has not been completely replaced. In particular, it was found that rail services are still most economical and desirable for long-distance haulage of bulky and heavy goods.

The present distribution of the industrial and associated activities in Edmonton is essentially oriented towards both railways and highways. Major businesses which consider proximity to both types of transport as an important site factor are engaged in the manufacturing and wholesaling of oil and chemical products, food and beverages, metal products, machinery and non-metallic mineral goods. On the other hand, a considerable number of firms dealing with oil field services and construction reported that their operations are largely independent of the railways. The general North American trend towards peripheral site development and industrial park planning is also found in Edmonton.

ACKNOWLEDGEMENTS

I am indebted to Dr. P. J. Smith of the Department of Geography, University of Alberta for his valuable suggestions and continuing assistance in the preparation of this thesis. Acknowledgment is also extended to Professor N. Seifried for his many helpful suggestions.

I would like to thank especially the railway companies serving Edmonton and the Planning Department of the City of Edmonton for their generous co-operation in supplying valuable information. To those industrialists and businessmen who freely spent their time in answering the questionnaire, my hearty thanks is due.

Finally, grateful appreciation is expressed to Professor J. J. Klawe for his advice on cartographic presentation, Mr. Jack Chesterman for map reproduction, and Miss Helen Verdin who so competently typed this thesis.

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CHAPTER I

INTRODUCTION

THE STUDY

Within cities and metropolitan areas, railway transportation facilities constitute an important element of the land use pattern. They also serve as nuclei around which other functional groupings are formed, and as such have an important bearing on functional differentiation within the total urban complex.

The primary purpose of this study is to trace the evolution of the railway network of the Edmonton metropolitan area and to evaluate its contribution to urban morphology. An attempt is therefore made to correlate the physical development of the railway trackage with the urban land use structure of Edmonton at various periods.

It should be pointed out from the outset that this study covers the whole metropolitan area of Edmonton. It is held to embrace the City of Edmonton and its immediate fringe area, particularly its eastern outskirts where the petroleum-chemical industrial complex is located. As the growth of this industrial area has been very closely related to the development of the railway trackage in its vicinity, it forms a very significant part of this study.

It has long been realized that the urban land use pattern is an expression of many interacting forces. There are innumerable physical, economic, social and political determinants of urban land use structure, of which railway transportation is only one. However this piece of research isolates the problem of the railway network from all the

other land use influences, to investigate the link between the railways and the urban land use pattern of Edmonton.

Although the railway complex, in one way or another, has been exerting influences on all types of land use within the metropolitan area, its most profound effect has been on the distribution of industrial, wholesale and warehousing activities. Accordingly, only a brief account will be given of the entire urban area, while special attention will be devoted to an analysis of the relationship between the railway tracks and industrial and associated land uses. Particular emphasis will also be given to the ways in which technological changes have modified the impact of the railways on the selection of industrial and associated sites. An attempt is made in Chapter III to evaluate the importance of rail transportation as compared with truck haulage in industrial and associated site selections. A large part of Chapter IV is a detailed assessment of the present industrial and associated land uses in relation to other types of land uses along the railway trackage. It is hoped that the implications of this analysis will be useful to Edmonton's city planners in planning for the future urban land use development of the city.

METHODOLOGY

Literature

Library research has been undertaken as a fundamental approach for this study. Two kinds of literature have been referred to: general works in the field of town and regional planning and urban geography, and material related to the Edmonton metropolitan area.

(i) Town and Regional Planning and Geographical Works

There is very little geographical and planning literature which is directly relevant to the theme of this study. Early studies on transportation and land use development are usually from a regional or continental point of view.¹ Late in the 1920's, however, Haig emphasized that transportation is the means for reducing the "frictions of space" between activity sites.² Mitchell and Rapkin in 1954 suggested that the land use pattern is "a large dependent system in which choice of location of an establishment is made in terms of spatial distribution of others with which it interacts."³ In 1956, A. C. O'Dell described the types and distribution of railway lines in London, Paris and New York.⁴ More recently, Guttenberg treated accessibility as an organizing feature in his concept of urban spatial structure.⁵ Mayer also noted that many of the characteristics of urban structure, functions, location, or internal pattern can not be understood without a knowledge of areal differences in transportation.⁶ From a planner's point of view, Chapin further clarified

¹W. F. Tye, Canada's Railway Problem and Its Solution, Montreal, 1917.

²R. H. Haig and R. C. McCrae, "Major Economic Factors in Metropolitan Growth and Arrangement," Regional Survey of New York and Its Environs, I, New York, 1927, p. 39.

³R. B. Mitchell and C. Rapkin, Urban Traffic, A Function of Land Use, New York, 1954, p. 132.

⁴A. C. O'Dell, Railways and Geography, London, 1956, pp. 167-176.

⁵A. Z. Guttenberg, "Urban Structure and Urban Growth," Journal of The American Institute of Planners, May, 1960.

⁶H. M. Mayer and C. F. Kohn, (ed.), Readings in Urban Geography, Chicago, 1963, p. 326.

that transportation planning is an essential part of urban land use planning.⁷

Most of these geographical studies, however, are focused on the relationship between road transportation and urban land use development.⁸ In view of the recent accelerated construction of highway systems and expressways, and the various traffic problems of the current automobile age, city planners and geographers seem to lay greater emphasis on the role of road transportation as a land use control. Transportation studies of specific metropolitan areas further shows that much greater concern has been given to the location of roads and their land use effects.⁹ There is, therefore, a general lack of research on the past, present and future significance of the railways on urban land use.

There are, nevertheless, a few empirical articles written on the growth of railroads within the urban centres.¹⁰ Special attention has been devoted to the railway complex of Metropolitan Chicago and Greater London.¹¹

⁷S. Chapin, Urban Land Use Planning, New York, 1965, pp. 339-345.

⁸For example, C. Clark, "Transportation, Maker and Breaker of Cities," Town Planning Review, Vol. 28, 1958, pp. 237-250.

⁹L. Wingo and Perloff, "The Washington Transportation Plan," Papers of the Regional Science Association, Vol. 7, 1961, pp. 249-262.

¹⁰Read for example, H. M. Mayer, "Localization of Railway Facilities in Metropolitan Centres as typified by Chicago," in H. M. Mayer and C. F. Kohn, op. cit., pp. 331-345.

¹¹See for example, H. M. Mayer, The Railway Pattern of Metropolitan Chicago, Ph.d. Dissertation, University of Chicago, 1943.

(ii) Material Related to the Edmonton Metropolitan Area

Although a considerable volume of material has been written on the history and general development of Edmonton, very little of it is relevant to this study. Information regarding the early railway and urban land use within the community is particularly scanty, and only piecemeal materials were gathered from the early writings.¹² Other works dealing with the local area are usually from the historical or narrative approach.¹³ Two sources, however, were found to be quite useful: the early newspaper of Edmonton, "The Edmonton Bulletin"; and the Council Minutes of the Town and, later, the City of Edmonton. Considerable factual information on the early period of railway and urban development was therefore derived from these two sources.

Some recent unpublished records of the railway companies in Edmonton were also made available for this research.¹⁴ They proved to be the most pertinent material, especially in the discussion of railway traffic volumes and the construction and elimination of trackages. However, due to the railway companies' policies, a large part of the records were kept confidential, and only a limited amount was released for research purposes.

¹²For example, Strathcona Board of Trade, Strathcona -- The Railway Town and Manufacturing Centre of Northern Alberta, Strathcona, 1903.

¹³See for instance, G. H. McDonald, Edmonton, Fort -- House -- Factory, Edmonton, 1959.

¹⁴See bibliography under the heading 'C.N.R. Company'.

The last source of material was the Draft General Plan and the various planning reports of the Planning Department of the City of Edmonton.¹⁵ Again, information was restricted in its relevance, as no reference had been made to the relationship between railway transportation and land use development of the city.

Questionnaires and Interviews

Since one of the major purposes of this study is to evaluate the importance of railway transportation in the selection of industrial and associated sites in Edmonton, the questionnaire approach was adopted to clarify the attitudes of businessmen in this respect. The themes upon which the questionnaires were compiled are as follows:

- (i) The number, types and distribution of businesses which are or have been closely related to railway transportation.
- (ii) The importance of the railways as a factor in the choice of industrial and associated sites in various periods.
- (iii) The importance of the railways as a factor in the relocation of industrial and associated establishments in various periods.
- (iv) The importance of the railways as a factor in the future choice of industrial and associated sites.

A copy of the questionnaire is attached in Appendix A. The questionnaire was sent to 1,203 firms which are located within one and a half to two blocks from railway trackage and marshalling yards over

¹⁵See bibliography under the heading, 'Edmonton, City Planning Department'.

the entire study area. The recipients therefore included virtually all firms engaged in manufacturing, wholesaling, warehousing and servicing businesses. The Henderson's Street Directory, 1966, was the major source from which the names and locations of these firms were derived. Of the 1,203 copies dispatched, 321 were completed, while ten refused to answer mainly because of their own company policies. From this 26.7 per cent return, it is believed that reasonably accurate conclusions could be drawn. Generally, more detailed information was supplied by the larger industries, and there was frequent evidence that considerable pains had been taken to ensure complete coverage of the required information.

To obtain more specific information in special cases, personal interviews and telephone contacts have been made, especially to the firms which expressed their mutual interest in this research work. When useful questionnaires were returned, interviews were also carried out to contact the sources. Personal communications with the officials of the Department of Planning, City of Edmonton, and the railway companies in Edmonton also proved to be very helpful in gleaning much valuable information.

Field Work

As field work is an essential implement for geographical studies, it has also been employed in this thesis to gain first-hand knowledge of the study area. It consisted mainly of mapping in detail the railway trackages and land uses of the area in the vicinity of the railway network and marshalling yards (see Figures 18 - 24). Most of the survey was undertaken in the summer of 1966.

Before going out to the field, preliminary information and maps

regarding the location of the major railway tracks was collected from the railway companies. General land use maps of the city were also obtained from the Planning Department of the City of Edmonton. A large part of the field survey was thus a matter of inspecting, updating and mapping in detail the railway spurs and industrial and associated land uses of the metropolitan area. No attempt has been made to illustrate the uses above the ground floor, as the majority of the industrial and storage establishments occupy single-storey buildings.

PRESENTATION

The findings of this research are presented in chronological order. According to the sequence of time, the evolution of the railway network will be discussed as background information to bring home to the land use development of Edmonton. Since all railway mainlines and subdivisions in Edmonton were completed before the Second World War, and, as the development of the railway after the Second World War was mainly in the form of industrial sidings and re-arrangements of spurs within the metropolitan area, the year 1939 will be used as a convenient break in the following presentation.

CHAPTER II

EVOLUTION OF THE RAILWAY NETWORK AND LAND USE PRIOR TO THE SECOND WORLD WAR

INTRODUCTION

Edmonton was originally established as a fur trading post in the early nineteenth century. The vast potential of furs in the great Northwest led to the founding of Fort Augustus by the Northwest Company and Fort Edmonton by the Hudson's Bay Company. In 1821 when the Northwest Company was absorbed by the Hudson's Bay Company, Fort Edmonton became the central point of the surrounding settlement.¹ From its elevated site on a bluff of the North Saskatchewan River (see Figure 1), the fort functioned as a trading and supply post. Development outside the fort was relatively limited until 1871 when homestead lands began to be claimed by the first settlers. The village of Edmonton was subsequently incorporated late in 1871.

Before the advent of the first railway in 1891, transportation in the Edmonton region was based on the North Saskatchewan River and overland trails. River transport included canoes, York boats and the Hudson's Bay Company steamship -- the "Northwest steamship"; while land transport was mainly by Red River carts and stage coaches. Not until 1891 was the first railway constructed to reach Strathcona² from Calgary. Railway construction then entered a boom period from the turn of the twentieth century to

¹The account of the early history of the forts is taken from J. G. McGregor, Blankets and Beads, Edmonton, 1956.

²Strathcona was the village facing Edmonton on the southern bank of the North Saskatchewan River. It was amalgamated with the City of Edmonton in 1912. See pages 11-18 for more detailed information.

the First World War. Development during the inter-war years was rather limited due to the general economic depression. However, the evolution of the railway network prior to the Second World War was characterized by the construction and elimination of prominent mainline trackages. In contrast to the post-war development, construction of private sidings and industrial spurs were relatively insignificant. This phenomenon therefore reflected the limited industrial development before the war.

It is the aim of this chapter to trace the evolution of the railway pattern of Edmonton and to evaluate its effects on land use prior to the Second World War. The significance of the railway contribution to urban morphology and its role in the location of industries and related businesses will be analysed.

HISTORICAL DEVELOPMENT PRIOR TO THE TWENTIETH CENTURY

By the early pioneers, the coming of a railroad was awaited with great eagerness. When preliminary surveys were begun for the first trans-continental railway in 1880, it was anticipated, in Edmonton, that this would be the first opportunity for rail communication with the outside world. In the expectation that the C.P.R. would be directed through Edmonton and the Yellowhead Pass, the village experienced a real estate boom in 1880-1882.³ Although the population was only about 350, *at this time* many lots were bought by speculators in Eastern Canada and even in England. This boom ended in the spring of 1882 when it became known that the C.P.R. would be constructed by way of the Kicking Horse Pass and Calgary.

³City Planning Department, Edmonton, Draft General Plan, Part 1, Chapter 1, 1963, p. 57.

In 1890, the Calgary-Edmonton Railway Company was organised. Steel was laid from Calgary to Strathcona and railway operations began in August 1891.⁴ In the village of Strathcona, the railway extended as far north as the present Saskatchewan Drive with a marshalling yard at approximately its present site (see Figure 1). Strathcona was then the northernmost railway terminal in Alberta.

The commencement of the railway was induced by both the Dominion government and the enthusiastic pioneers. The railway company was granted a land subsidy of 6,400 acres per mile for the route between Edmonton and Calgary.⁵ To persuade the railway to come right into the village, three settlers, Fred Sache, Joe MacDonald and Tom Anderson, who originally owned the site occupied by the railway yard, donated every alternate block of their properties to the company.⁶ When the railroad was completed, it was immediately leased to the C.P.R. Company, by whom it has been operated ever since.⁷ There were two trains per week in the 1890's. Trains left for Calgary on Tuesdays and Fridays, and arrived at Strathcona on Mondays and Thursdays. A trip to Calgary could then be made in about twelve hours.⁸

In 1891, Edmonton did not appear as one community as it is to-day. It actually consisted of two small villages: the village of Edmonton on the

⁴C.P.R., Master Data Book, unpublished record, 1966, p. 4.

⁵J. Blue, History of Alberta, Vol. 1, Chicago, 1924, pp. 313-314.

⁶J. G. McGregor, Edmonton Trader, Toronto, 1963, p. 203.

⁷Blue, op. cit., p. 314.

⁸Loc. cit.

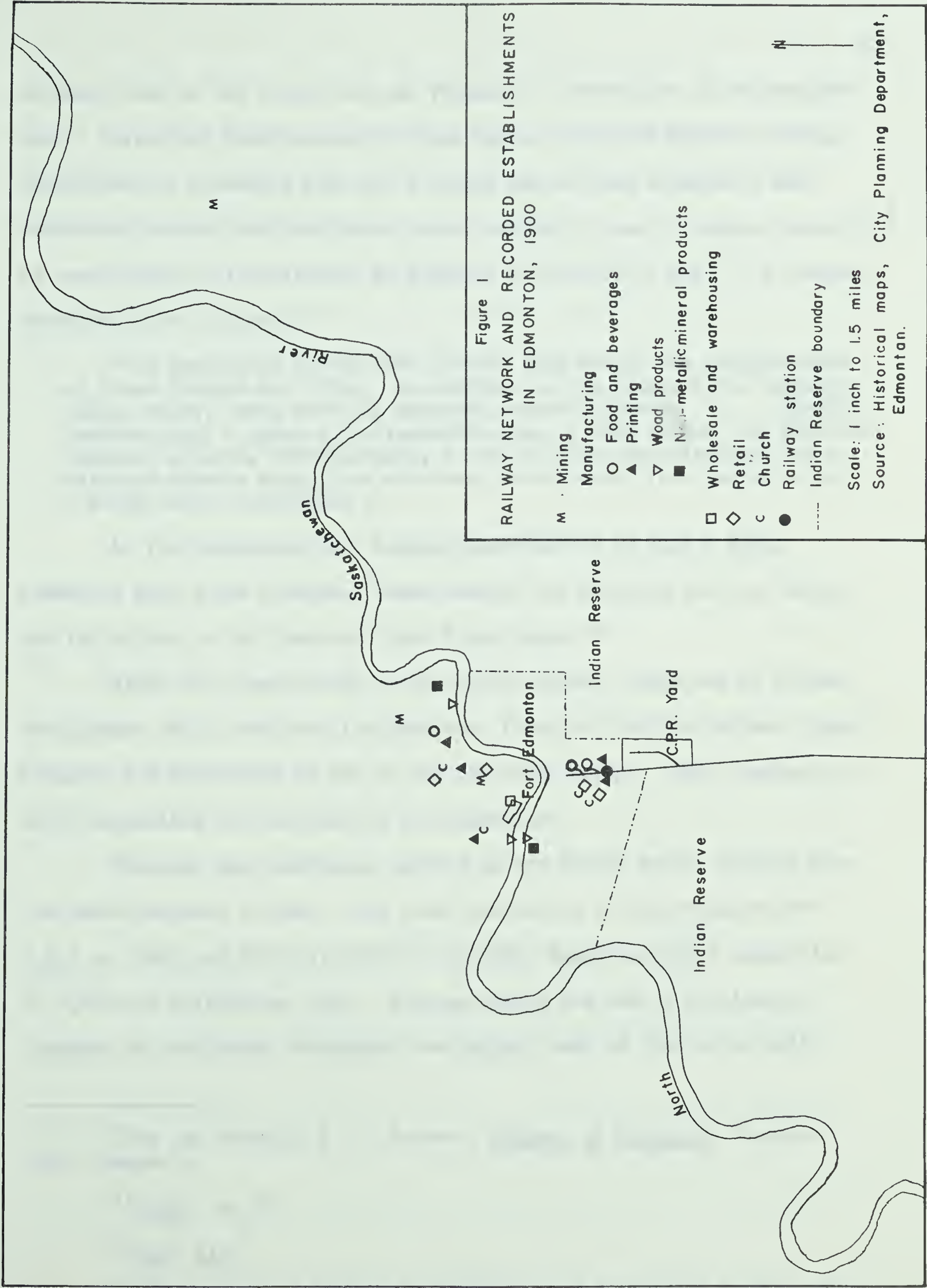


Figure 1
RAILWAY NETWORK AND RECORDED ESTABLISHMENTS
IN EDMONTON, 1900

- M Mining
- Manufacturing
- Food and beverages
- ▲ Printing
- ▽ Wood products
- Non-metallic mineral products
- Wholesale and warehousing
- ◇ Retail
- c Church
- Railway station
- Indian Reserve boundary

Scale: 1 inch to 1.5 miles
Source: Historical maps, City Planning Department, Edmonton.

northern bank of the river, and the village of Strathcona on the southern bank. Historical descriptions of these places show that Edmonton, being established as a trading post for a longer period, had attained a more prosperous status than Strathcona, which was only a small farming community.⁹ In recalling his first arrival at Edmonton in June 1887, Rev. D. G. McQueen described it as follows:¹⁰

"The population of the Town at that time was in the neighbourhood of three hundred and fifty. In addition to the Hudson's Bay Company's supply depot, there were six mercantile establishments . . . [and] a butcher-shop, a baker's, a blacksmith shop, a land office, the Edmonton Bulletin printing establishment, a boat-building establishment and a carriage-maker's shop, four churches, two schools, four saw mills and a brick yard" (see Figure 1).

As for Strathcona, Dr. McQueen described it as only a small community with a few prominent homesteaders: Joe McDonald and John Walter, and the office of the Dominion Crown Timber Agent.¹¹

After the construction of the first railway, there was no further development until 1902 when the Edmonton, Yukon and Pacific Railway linked Edmonton and Strathcona by way of the Low Level Bridge. What reasons then were responsible for this period of stagnation?

Edmonton and Strathcona existed as two rather small villages when the first railroad arrived. The total population of both villages was 1,638 in 1894, and 2,212 in 1899.¹² In 1901, Edmonton ^{had} held a population of 2,626 and Strathcona 1,931. Although there had been a continuous increase of immigrants throughout the period, many of them were "half-

⁹See for example, E. A. Corbett, McQueen of Edmonton, Toronto, 1934, Chapter 4.

¹⁰Ibid., p. 36

¹¹Loc. cit.

¹²All population figures for Edmonton and Strathcona used in this chapter are from unpublished records, City Planning Department, Edmonton.

breeds" and "few had any special use for railways."¹³ There was, therefore, no great demand to induce another railroad into the villages. The project of constructing a cross-river bridge and extending the existing railway to the northern bank was also delayed, mainly because the cost was beyond the ability of such small communities.

Another factor which hindered the extension of the railroad into Edmonton proper was the policy of the railway company itself. The C.P.R. Company wanted to develop Strathcona as its own "townsite".¹⁴ Thus, why should it bear the cost of a bridge when it had confidence that the coming of the railroad to Strathcona would turn the place into a city, while Edmonton became only a town?

In addition, the lack of railway development in these years reflected the continuing importance of other means of transport. The well established "Northwest" steamship continued to be used as a means of river transport to the northern and eastern part of Canada. It was operated to "come up the river on Spring rise" until shortly after 1899.¹⁵ Overland transport between Edmonton and Winnipeg and the East was also possible by horse wagons and coaches. According to people with knowledge of the early period, overland wagons and coaches were still preferred

¹³Esdale Press Limited and McDermid Engraving Company Limited, Edmonton -- Alberta's Capital City, Edmonton, 1914, p. 9.

¹⁴J. Walter, "Biography", in M. McCauley, Biographies of Western Pioneers and History of Settlement of Western Canada, Northern Alberta Pioneers and Old Timers Association, Edmonton, 1947, Vol. 2, p. 354.

¹⁵City Planning Department, Edmonton, Historical Map of Edmonton (North-side), 1790 - 1900, (map).

because railway services were not frequent and never punctual. Although there was no bridges between Edmonton and Strathcona, cross-river trans-shipment of goods was operated by John Walter's "Upper Ferry" from 1876 to 1913, and by the "Lower Ferry" at the foot of McDougall Hill.¹⁶ The coming of the railroad therefore benefited both Strathcona and Edmonton. W. Heatby in his biography recorded that a cartage company was operated by D. C. Robinson who used to move freight from Strathcona by horse team and ferry to Edmonton, while most of the traffic north of the river was handled by the Hudson's Bay Company.¹⁷

After the advent of the first railroad, Strathcona, though small in size, experienced a considerable growth. J. MacDonald of Edmonton wrote in later years that " . . . the rival town of Strathcona . . . grew while we remained for years practically at a stand still "¹⁸ Undoubtedly, a very strong rivalry developed between the two communities. Most of the development in Strathcona took place around the railway station and marshalling yard; and the impact of the railway on the land use development of the village was very pronounced. In fact, the effect of the railway on the initial establishment of a commercial and industrial core around the C.P.R. station is still apparent to-day.

The most prominent features clustered by the railway yard were grain mills and lumber yards. Brackmanker built the first oatmeal mill west of Manitoba, while in 1897, the first grain elevator was erected by

¹⁶J. Walter, op. cit., p. 424.

¹⁷W. Heatley, "Biography", in M. McCauley, Biographies of Western Pioneers and History of Settlement of Western Canada, Northern Alberta Pioneers and Old Timers Association, Edmonton, 1947, Vol. 1, p. 206.

¹⁸J. G. McGregor, Edmonton Trader, Toronto, 1963, p. 203.

the C.P.R. station where the present tennis court now stands.¹⁹ J. J. Duggan¹ in his biography recorded:

"In 1891 on the completion of the Calgary-Edmonton Railroad, I came to South Edmonton and started a lumber yard bringing lumber from British Columbia. It was the first lumber yard in Edmonton South."²⁰

Although these industrial and associated establishments did not have any private railway sidings, they were located close to the railway to minimize the distance of wagon transshipment. Until shortly after 1897 two industrial sidings were projected to reach the above-mentioned premises.²¹

The area around the railroad yard was also a focal point of commercial and social activities. Strathcona became a headquarters for agricultural equipment dealers and their associated repair shops. As a result, much of the area adjacent to the railway yard was utilized to display wagons and other equipment. Along Whyte Avenue which was named after Sir William Whyte of the C.P.R., the first hotel -- Strathcona House -- was built in 1891 as a strong competitor to Donald Ross' Hotel at the foot of McDougall Hill. Some real estate businesses flourished around the same area for the convenience of new immigrants. A prominent auctioneer, M. H. Crawford, established his firm in Strathcona shortly after 1900. In

¹⁹All names, locations and years of operations of the industrial and associated businesses referred to in this chapter are derived from the returned questionnaires unless otherwise stated.

²⁰J. J. Duggan, "Biography", in M. McCauley, Biographies of Western Pioneers and History of Settlement of Western Canada, Northern Alberta Pioneers and Old Timers Association, Edmonton, 1947, Vol. 1, p. 159.

²¹Pers. comm. W. Lewis, C.P.R. Chief Clerk, Edmonton, September, 1966.

addition, several early churches were sited close to the established centre.

These rapid developments in Strathcona created alarm in the village of Edmonton. Indeed, competition between the two villages was intense and bitter. For instance, Donald Ross could no longer enjoy a monopoly in the hotel business, and he was forced to run a horse-bus to bring customers from the railway depot to his cross-river hotel.²² The climax of the rivalry was seen in the well-known event of the land office 'rebellion' in 1892.²³ Assuming that the growth of the community would take place in conjunction with the railway terminal, the federal government ordered the land office to be transferred from Edmonton to Strathcona. This was resisted by the citizens of Edmonton. After a long exchange of telegrams, it was finally agreed that the land office would remain in Edmonton, with a sub-office in Strathcona.

"Opposing such a strong rivalry," recalled J. McDougall, "there seemed every reason and inducement for us to pull up stakes and move over to the new town and the railway."²⁴ This physical movement of townsite has not been uncommon. In Calgary, for instance, the urban core was relocated west of the Elbow River, in Section 15, when the C.P.R. reached the city in 1883.²⁵ In Edmonton, however, the attraction of the Strathcona depot was

²²T. Cashman, More Edmonton Stories, Edmonton, 1959, p. 175.

²³Details of this event were described in E. A. Corbett, McQueen of Edmonton, Toronto, 1934, pp. 93 ff.

²⁴McGregor, op. cit., p. 203.

²⁵J. S. Gibson, Physical Factors and Land Use, Calgary, unpublished M.A. thesis, University of Alberta, Edmonton, 1965, p. 26.

not strong enough to agglomerate all the urban establishments of the two villages. Undoubtedly, the inducement was great, but Edmonton remained as a more prosperous centre than Strathcona. Some statistics for 1901 could serve to illustrate the situation of these two communities:²⁶

Town	Population	Salaries and Wages	Values of Products	Number of Houses
Edmonton	2,626	\$47,925	\$243,778	517
Strathcona	1,903	43,825	177,314	375

Edmonton was incorporated as a town in 1892, and as a city in 1904. Strathcona attained town status in 1899, and city status in 1907.

Edmonton had political and economic advantages which helped it to keep its edge over Strathcona. As already pointed out, Edmonton had its initial root of establishment as a fur trading post. Subsequently, it functioned not only as a centre of commercial activities, but also as a seat of governmental administration. Although there was no direct railway service until 1902, the town had its land office, and a post office. As a fur trading post, there was also a considerable amount of transport and trade with the northern country and even with the overseas nations by way of the North Saskatchewan River and Hudson Bay. The railway to the south was, therefore, not the only direction of communication. Moreover, there was a hindrance to the southward expansion of Strathcona, because the area south of University Avenue and part of Northeast Strathcona was the Indian Reserve of the Papachase Band.²⁷ Last but not least, part of the growth

²⁶Source: S. E. Dawson, Census of Canada, Ottawa, 1901.

²⁷City Planning Department, Edmonton, Historical Map of Edmonton, (southside), 1890-1900 (map).

of Edmonton could be attributed to the Klondike gold rush in 1897-1898. As the final outfitting post for gold-seeking parties, the growth of Edmonton was substantial.

PERIOD FROM 1900 TO THE OUTBREAK OF THE FIRST WORLD WAR

The rapid construction of railways from the turn of the century to the outbreak of the First World War opened a new era in the history of Edmonton. This was a tremendous boom period in which railway trackages were projected into the city; and then spread out like a spider's web.

Inspired by the rumours of gold in the Yukon, the Edmonton District Railway Company, later known as the Edmonton, Yukon and Pacific Railway Company was incorporated under Dominion Act No. 59 in 1896 to construct and operate a railroad between Edmonton and Strathcona.²⁸ At the same time, residents of Edmonton had been urging the Dominion government to build a bridge across the river so that they could have direct access to the railway station on the south side. Finally in February 1897, the government made the decision to construct the Low Level Bridge on condition that Edmonton would contribute \$25,000 towards the cost.²⁹ Although the sum was guaranteed by J. A. McDougall, Kirkpatrick Heiminck and a few other Edmontonians, progress was rather slow. Both the C.P.R. and the Town of Strathcona seemed to be working in opposition. With a further setback caused by the flood of 1899, the Low Level Bridge was not completed until the fall of 1902. Meanwhile, the Edmonton, Yukon and Pacific Railway was under active

²⁸All names, locations and dates of construction and operation of the railways are from A. B. Hoppers and T. Kearney, Synoptic History of Organization, Capital Stock, Funded Debt and Other Information, C.N.R. Accounting Department, Montreal, 1962, unless otherwise stated.

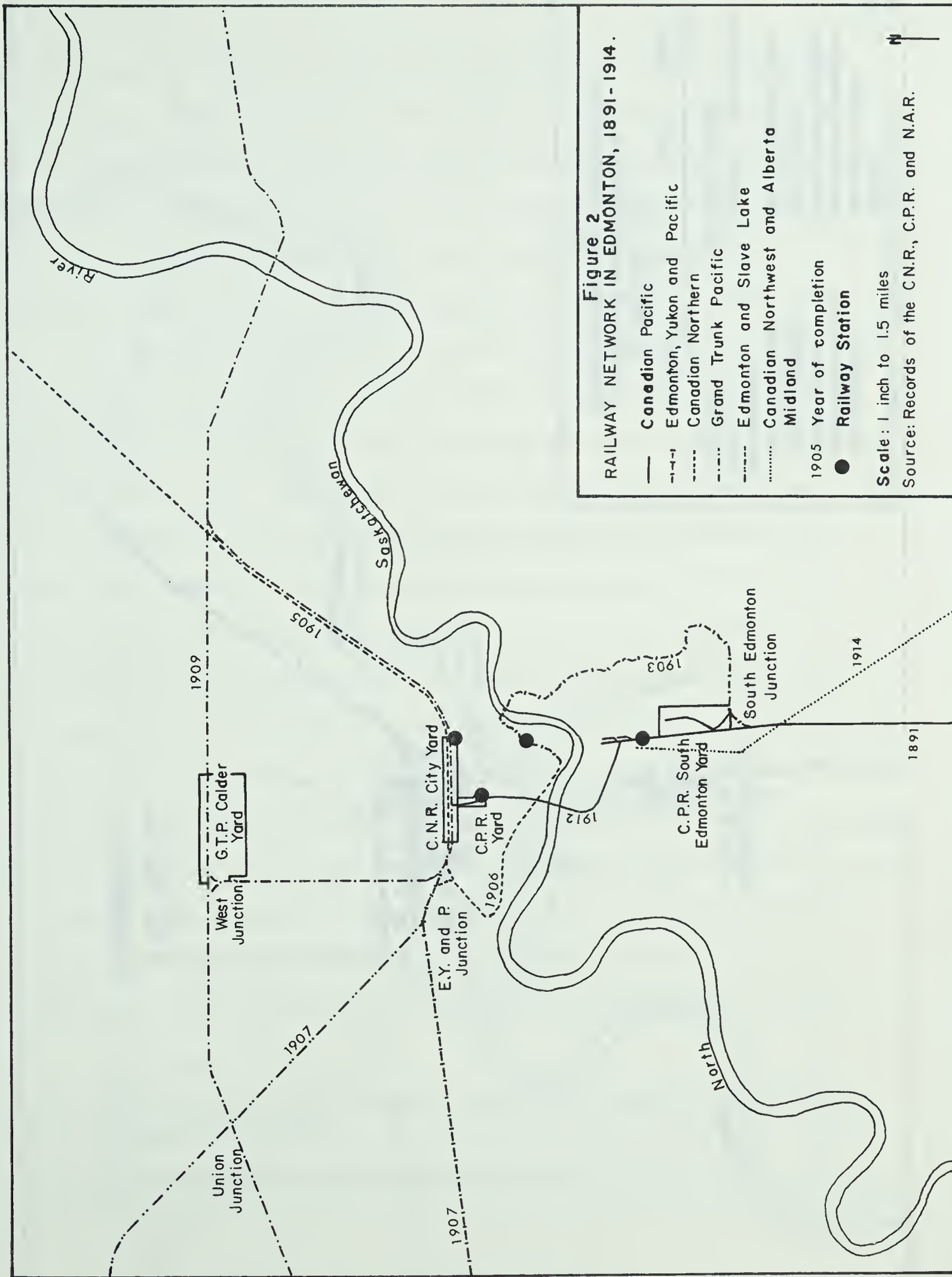
²⁹McGregor, op. cit., p. 213.

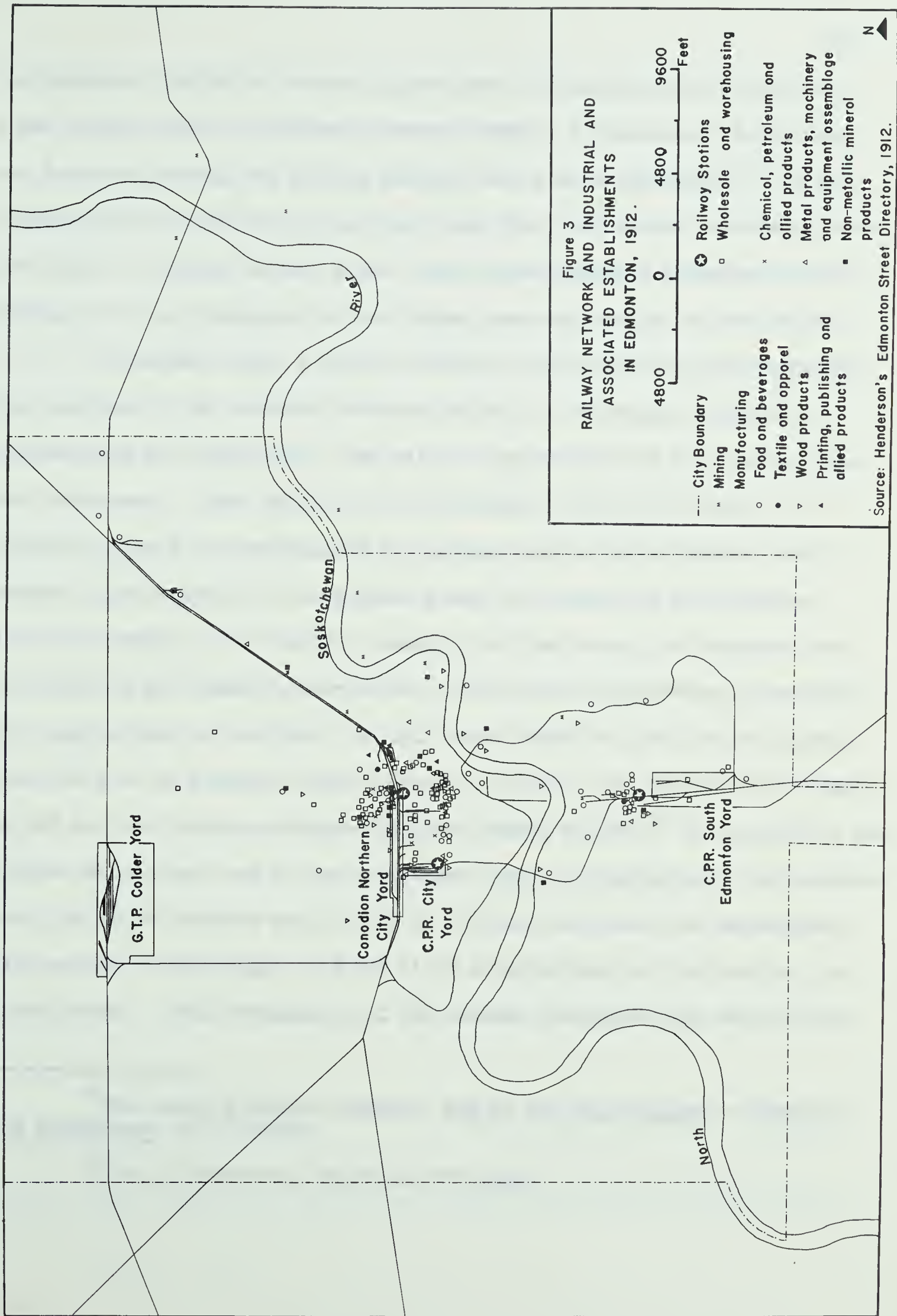
construction on the northern bank of the river. In November 1902, the 4.5 mile long line was linked to the C.P.R. Station in Strathcona. Trackages began on the river bluff close to Fort Edmonton, continued down the MacDougall Hill, crossed the Low Level Bridge, wound along the Mill Creek Ravine and ended at the marshalling yard of the C.P.R. (see Figure 2). A railway depot was erected half way between Fort Edmonton and Ross's Hotel.

The North Saskatchewan Valley, the Low Level Bridge and the valley of Mill Creek were the governing factors for the location of this railway line. However, the influence of the existing land use pattern should not be overlooked. As a prominent feature in the community, Fort Edmonton was probably the major inducement for the starting point of the railway. The warehouses of the Hudson's Bay Company also had a demand for railway services although communication towards the south was not the only outlet. Another significant factor was the established city centre of the day, which was "some three or four blocks each way from the corner of Jasper and First Street."³⁰ The station and railway tracks were thus constructed very closely to the urban nucleus.

With the completion of this link with the outside world, Edmonton grew at an accelerated rate. In 1904 when it was incorporated as a city, it held a population of about 7,000. Apparently the railway was responsible for the specific sites of certain economic activities (see Figure 3). Shortly after the commencement of the railroad, the meat packing plants of Gainers and Vogel were situated along the railway and Mill Creek. In 1906,

³⁰Ibid., p. 235.





the Edmonton City Dairy erected a plant near the southern end of the Low Level Bridge, where the Edmonton Lumber Company, P. Anderson's Brick Yard and Edmonton Brewing and Malting Company were also established.³¹ On the northern bank of the river, the City Power Plant and Arctic Ice Company were the first to take up railway sites. Both establishments installed private sidings, for coal shipments in the former case and for ice in the latter.

In December 1905, a direct railroad connection with Eastern Canada was provided by the Canadian Northern Railway via Winnipeg, Saskatoon, Lloydminster and Vegreville. The railroad approached the city centre from the north-east. (This main line is the present C.N.R. "X" line). A marshalling yard was established in the area west of 101st Street, and bounded approximately by the present Stony Plain Road and 105th Avenue. As an inducement to the railway company, the Town Council of Edmonton and the Hudson's Bay Company contributed to the cost of the station ground and the right-of-way of the yard. In 1903 under Bylaw No. 276, it was agreed that the Town of Edmonton would contribute \$30,000, the Hudson's Bay Company \$5,000 and the Canadian Northern Railway Company \$5,000.³² A round house was erected at the west end of the yard where there was hardly any other development, while the station was located at the east end, near the established city centre. The freight shed was sited slightly west of the station, on 103rd Street. This arrangement of the railway facilities was described as

³¹The Mundy Blueprint Company, Map of the Twin Cities -- Edmonton and Strathcona, 1911, (map).

³²City of Edmonton, Bylaw No. 276, 1903.

"convenient to Main Street or Jasper Avenue,"³³ From hence, a tri-weekly traffic schedule was in effect between Winnipeg and Edmonton.

In December 1906, the connection between the Canadian Northern Railway Yard and the Edmonton, Yukon and Pacific Railway near Fort Edmonton was completed. This enabled the Canadian Northern to connect with the C.P.R. at Strathcona, and consequently with southern Alberta via Calgary. Concurrently, a further extension to the wilderness was started at the Edmonton, Yukon and Pacific Junction (i.e. Junction at 121st Street), which was then at the outskirts of the city. Projected towards the northwest, the Edmonton and Slave Lake Railway Company completed a line to St. Albert and Cardiff. In the following year, the Edmonton, Yukon and Pacific Railway Company succeeded in advancing west to Stony Plain. Then, due to financial and operational difficulties, all branches of the Edmonton, Yukon and Pacific Railroad were absorbed by the Canadian Northern in 1909.³⁴ The same happened to the Edmonton and Slave Lake Railway Company two years later.³⁵

The Canadian Northern Railway played an important role in pre-shaping the general land use pattern of the city. Quite markedly, the railway line affected the spatial distribution of commercial, industrial and residential land uses in the urban area. The most prominent effect of the Canadian Northern depot and freight shed was the consolidation

³³Brant Ducey, C.N.R. Stations in Edmonton, unpublished record, C.N.R., Edmonton, 1964, p. 9.

³⁴A. B. Hoppers and T. Kearney, Synoptic History of Organization, Capital Stock, Funded Debt and Other Information, C.N.R. Accounting Department, Montreal, 1962, p. 213.

³⁵Ibid., p. 211.

of the city centre nucleus at three to four blocks from 101st Street and in between Jasper and 105th Avenues. These railway facilities acted as a magnet around which wholesaling, warehousing, manufacturing and associated commercial activities were clustered. While the North Saskatchewan River and the 3,000 acres of Hudson's Bay Company Reserve (extending from the river north to 118th Avenue and between 101st Street and 121st Street) had exercised considerable influence on the original location of the city centre, the Canadian Northern Railway marshalling yard set its northern limit. The railway depot stimulated some commercial and office growth around its vicinity, including the post office in 1907, the Empire Block (Government office) in 1905 and MacDougall and Secord Buildings in 1906.³⁶ According to a few merchants with knowledge of the city, direct railway service was a very important factor in the selection of industrial sites, as transshipment by horses and wagons between the freight sheds and places of businesses was rather inconvenient. As a result, by 1907, a number of industrial sidings were projected along the back lanes of most of the streets in the city centre (see Figure 3). Major industrial and associated establishments which installed private sidings shortly after 1906 included W. H. Clark Lumber Company, Northern Hardware Company, Western Cartage and Storage Limited and International Harvester Company, all along 104th Street; and the elevator of the Alberta Grain Company on the northern side of the marshalling yard. Other smaller establishments which could not afford to install private spurs tended to locate as closely to the freight shed as

³⁶City Planning Department, Edmonton, Draft General Plan, Part 4, Chapter 10, 1966, p. 3.

possible.

Outside the central business district of the day, some dispersed lineal industrial development emerged along the railway trackages. A few coal mines were established although their limited output did not promote any railway traffic for distant export.³⁷ In addition, there was a concentration of meat processing and manufacturing activities in north-east Edmonton. This began with the Edmonton Stockyards which, in turn, induced the establishment of the Swift Packing Plant in 1907, and Burns and Company Limited in 1908. The neighbourhood then grew up as an industrial suburban village called North Edmonton, and continued to flourish until 1910 when it was annexed to the City of Edmonton.³⁸

In 1909, Edmonton was chosen by the Grand Trunk Pacific Railway Company as its chief divisional point on the transcontinental mainline between Winnipeg and the Pacific Coast. The railroad mainline and marshalling yard for the Western Mountain Region³⁹ were then constructed to the north of the city. They are now the C.N.R. mainline and the Calder Yard (see Figure 2). The choice of site at the northern outskirts of the city was partly governed by the location of the Clover Bar Bridge, which was physically the closest link between the two banks of the river. At the same time, the Hudson's Bay Company was still holding its 3,000-acre

³⁷Pers. comm. C. Quilley, Industrial Development Officer, C.N.R., Edmonton, September, 1966.

³⁸J. G. Suski, Edmonton -- Short History, General Description of the Area, Edmonton, 1965, p. 10.

³⁹The Western Mountain Region includes the Provinces of Saskatchewan, Alberta and British Columbia.

land reserve within the city. The price of the remaining real estate close to the urban centre was rising so rapidly⁴⁰ that the railway company found it impossible to acquire a spacious tract of land at a reasonable cost.

In order to provide direct services to the community, the Grand Trunk Pacific Railway entered into a private agreement with the Canadian Northern Railway to obtain a right-of-way into the city centre. Another branch was therefore projected to enter the expanding community from North Edmonton Village. By-passing the City Yard of the Canadian Northern, the trackage turned to the north at the 121st Street Junction, and proceeded to join the mainline west of Calder. This significant U-loop trackage is the present "A" and "B" lines of the C.N.R. (see figure 2). Meanwhile, the company bought a block of land at 96th-97th Streets, and between 104th and 105th Avenues, for the site of its own freight shed. The existing Canadian Northern Railway Depot at 101st Street was remodelled and used as a "Union Depot" for "passenger and parcel express."⁴¹ Commencing in September 1909, a mixed passenger and freight traffic between Winnipeg and Edmonton was operated tri-weekly until the summer of 1910, when a daily passenger train came into service.⁴²

With the arrival of the Grand Trunk Pacific Railroad, the general boom already nurtured by the Canadian Northern was further accelerated. Keeping pace with the rising land values in the established city centre,

⁴⁰City Planning Department, Edmonton, Draft General Plan, Part 1, Chapter 1, 1963, p. 58.

⁴¹Brant Ducey, C.N.R. Stations in Edmonton, unpublished record, C.N.R., Edmonton, 1964, p. 10.

⁴²Ibid., p. 12.

residential lots close to Calder were sold at \$150 to \$200 each.⁴³

Industrial and commercial premises continued to be drawn to the proximity of the freight sheds and Union depot, so that the location of the early city centre was further confirmed. Eventually, the area along 97th Street leading to the new freight shed, was to become one of the most prosperous parts of the city after Jasper Avenue and 101st Street. Newly established firms which produced a significant volume of railway traffic included Shugarman's Limited and Pilkington Brothers Limited. The open ground along the railroad between North Edmonton Village and the city freight sheds also began to be filled in by new industrial and associated activities. In 1910, the sheet metal manufacturing plant of Westeel Rosco Limited was established west of the Exhibition Grounds. To its immediate north-east, Hayward's Lumber Company Limited occupied a large site near 118th Avenue. In 1915, Alberta Provincial Sheep Breeders Co-operative Association Limited was located at the Exhibition Grounds. The City of Edmonton also made use of the new railway by establishing the repair shop of the Engineering Department in the vicinity of the freight shed along 105th Avenue.

At the same time, continuous expansion of the meat packing industrial complex at North Edmonton was induced by the juxtaposition of the Canadian Northern and the Grand Trunk Pacific Railways. In 1916, for instance, the Health of Animals Division of Western Stockyards was opened, followed by Weiller and William Ranches Company Limited in 1917. A small residential community of railway workers' families sprang up quite rapidly

⁴³Ibid., p. 11.

west of Calder Yard, where the village of Calder continued to grow until 1917 when it was annexed to the City of Edmonton.⁴⁴

The two new transcontinental railways in Edmonton created strong competition for the C.P.R. on the southern side of the river.

Eventually, the railway company decided to extend its trackage to the north side through the High Level Bridge which was constructed between 1910 and 1913. The bridge cost more than \$2,000,000, and was shared in the following manner: the Government of Alberta, 15.5 per cent; the Dominion government, 11.2 per cent; the City of Edmonton, 21.1 per cent; the City of Strathcona, 4.4 per cent; and the C.P.R., 47.8 per cent.⁴⁵

Rails were laid on the top deck of the bridge, and direct railway contact between the 'Twin Cities' was completed in June 1913. The C.P.R. trackage was constructed along 109th Street as far north as 100th Avenue, at which point it was directed along 110th Street. The line then continued north to link to the trackage of the Canadian Northern Railway at the City Yard (see Figure 2). The C.P.R. also bought a large piece of land between 109th and 111th Streets and north of Jasper Avenue for the site of their public sidings, freight shed and passenger station.

Shortly after the completion of the High Level Bridge, some wholesaling and industrial activities including Donald H. Bain Limited, Northern Alberta Dairy Pool Limited and the Edmonton City Dairy were attracted to the railway facilities. Progressively, more urban develop-

⁴⁴Suski, op. cit., p. 10.

⁴⁵C.P.R., unpublished record, Edmonton, 1950.

ment appeared along 108th, 109th and 110th Streets. This gradual westward shift of the central business district could partly be attributed to the existence of the C.P.R. trackage. Moreover, this new cross-river line was also responsible for heightening the general boom of the city. Through the interchanging services⁴⁶ of the Canadian Northern, the C.P.R. was able to reach the industrial and business areas of both the city centre and the outer districts. The climax of the boom was reached in 1912-1913 when more industrial and commercial businesses were established, making use of both railway facilities. Ultimately, the Cities of Edmonton and Strathcona were amalgamated in 1913.

The last railway line which entered the city before the outbreak of the First World War was the Camrose Subdivision of the Canadian Northern Railroad in 1914. With the establishment of a depot at 104th Street and 80th Avenue, the existing urban nucleus south of the river was further intensified.

To summarise the major influences of the railway network on the land use development of Edmonton up to 1914, Figure 3 has been prepared from the Henderson's City Directory of 1912 and the returned questionnaires. An attempt has been made to illustrate the specific sites of various industrial and related premises. Significant railway sidings for industrial and associated services have also been plotted.

As shown in Figure 3, the local manufacturing industries of the day largely consisted of food and beverages, metal, brick and wood working,

⁴⁶Refer to Chapter III.

printing products and clothing. The majority of these activities clung closely to the railway spurs and to the public loading and unloading facilities. Like the disposition of the commercial-business land use, their major concentrations were at the city centre and the C.P.R. Southside station vicinity. Along Jasper Avenue, however, some printing and centrally oriented firms such as jewellery shops were established. Other industrial developments outside the city centre were comparatively limited. They included the meat packing complex at North Edmonton and the Mill Creek Ravine, a few coal mines along the railroad between the central area and North Edmonton, the wood working and brick yards close to the river, and the scattered bakeries servicing the local neighbourhoods.

The influence of the railway on wholesale and warehousing land use was also pronounced. With only a few exceptions, these firms were exclusively gathered at the current city centre and the southside nucleus in close proximity to the freight sheds. The returned questionnaires indicated that a considerable number of general hardware and merchandise wholesaling firms were serviced by private industrial sidings.

THE INTER-WAR PERIOD

Railway development from 1914 to the outbreak of the Second World War was relatively limited. Generally, the construction and elimination of trackages coincided fairly closely with the alternating periods of economic depression and recovery.

To open up the Northwest Territories, the Edmonton, Dunvegan and British Columbia Railway Company completed a line from the Dunvegan Yard in North-west Edmonton to Smith in March 1915. Accompanying the estab-

lishment of the Dunvegan Yard were a few lumber mills situated to the immediate west of the railway tracks. However, due to the general economic depression and their distant location from the city centre, these establishments never expanded to any significant extent.

Railway development then stagnated until the late 1920's. Due to the financial difficulties of the railway companies, the C.N.R. Company was incorporated in June 1919 to oversee the joint operations of the various undertakings of the Canadian Northern System and the Canadian Government Railway System.⁴⁷ In July 1920, responsibility for the operation of the Grand Trunk Pacific Railway was assumed by the Canadian Northern so that the system could be operated jointly with the C.N.R. (then the Canadian Northern and the Canadian Government Railways).⁴⁸ Similarly, the C.P.R. took over the management of the Edmonton, Dunvegan and British Columbia Railway, and the Canada Government Railway for a period of five years from July 1920.⁴⁹ The C.P.R. then acquired a right-of-way in the city centre and extended a line from its yard at 110th Street to the Edmonton, Yukon and Pacific Junction. Direct contact with the Dunvegan Yard was thus possible through running over the Canadian Northern tracks along 120th Street.⁵⁰

⁴⁷H. B. Hoppers and T. Kearney, Synoptic History of Organization, Capital Stock, Funded Debt and Other Information, C.N.R. Accounting Department, Montreal, 1962, p. 82.

⁴⁸Ibid., p. 349.

⁴⁹Ibid., p. 351.

⁵⁰Pers. comm. C. Quilley, Industrial Development Officer, C.N.R., Edmonton, September, 1966.

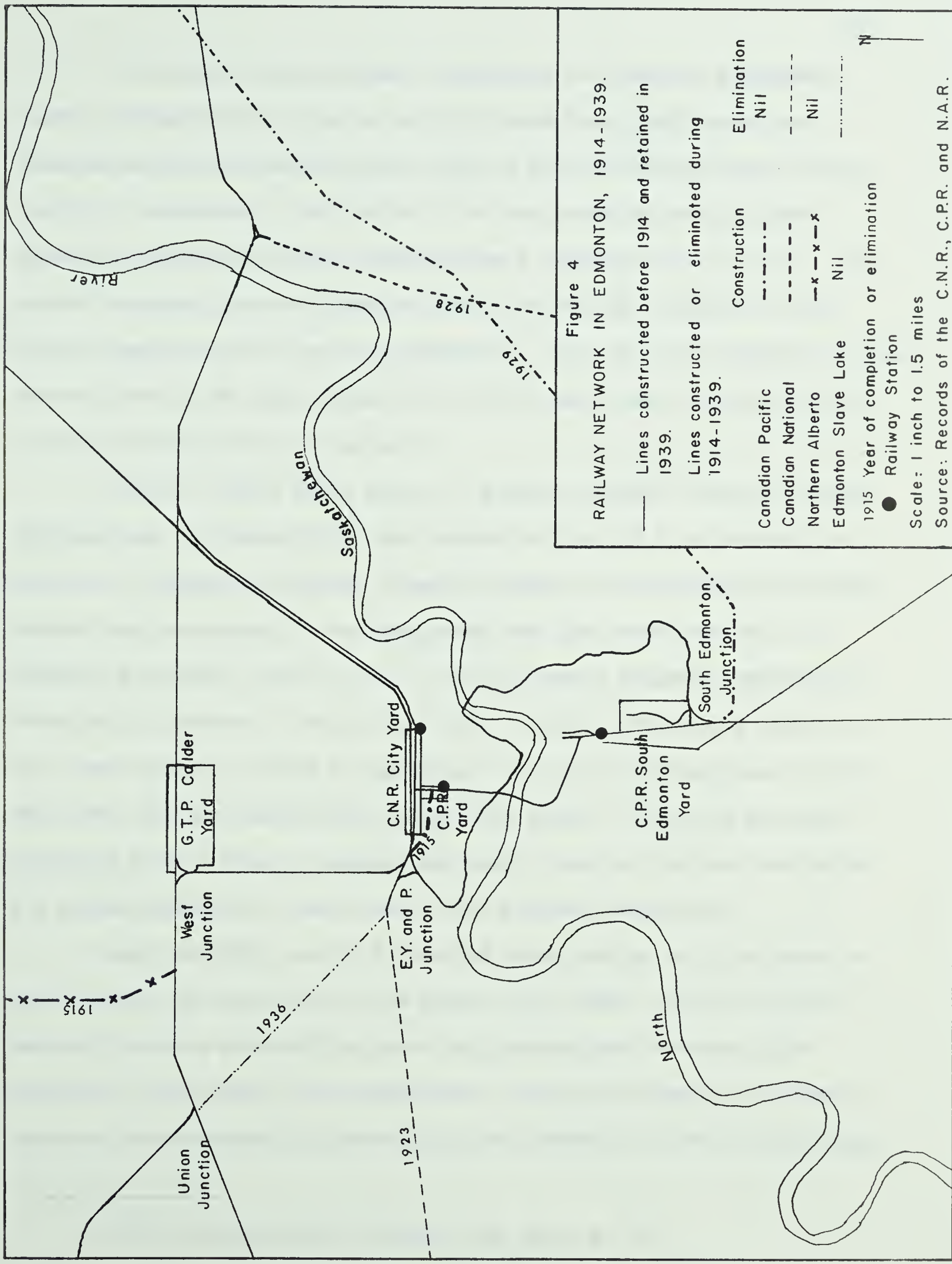


Figure 4

RAILWAY NETWORK IN EDMONTON, 1914-1939.

— Lines constructed before 1914 and retained in 1939.

Lines constructed or eliminated during 1914-1939.

Construction	Elimination
Canadian Pacific	Nil
Canadian National	Nil
Northern Alberta	Nil
Edmonton Slave Lake	Nil

1915 Year of completion or elimination

● Railway Station

Scale: 1 inch to 1.5 miles

Source: Records of the C.N.R., C.P.R. and N.A.R.

To minimise the unnecessary trackages, the Dominion government began to dismantle the rails on both the Grand Trunk Pacific and the Canadian Northern Railways between Imrie in Alberta and Red Pass Junction in 1917. Consequently, the tracks of the two companies running from Edmonton to Stony Plain were rearranged as a composite line by 1923. The branch extending from the Edmonton, Yukon and Pacific Junction at 121st Street towards the west was then abandoned. Since all these changes occurred more or less at the outer fringe of the urban area, they had little effect on the land use pattern of the city.

The late 1920's saw a period of gradual recovery from the economic difficulties. In August 1926, the contract of the C.P.R. to manage the Edmonton, Dunvegan and British Columbia Railway and the Canadian Government Railway was terminated.⁵¹ The management was then taken over by the Dominion government, and the C.P.R. lost the direct railway communication from the city centre to the Dunvegan Yard. However, foreseeing that the city would sooner or later be expanding, the C.P.R. still kept part of the main track and the right-of-way along 104th Avenue. This deed was later proved to be wise when the company was able to convert the area into sites for public sidings and team tracks in the post-war boom years.

Early in 1928, the C.N.R. erected a new station on 100th Street at approximately the same site as the present C.N. Tower. The old building was still used as extra office space and quarters for the yard office staff until 1952, when it was demolished. During this period of economic recovery, more wholesaling, warehousing and commercial activities were again

⁵¹H. B. Hoppers and T. Kearney, op. cit., p. 626.

drawn to the urban nucleus adjacent to railway facilities. Significant firms newly established along spur tracks were: Gaults Alberta Limited (dry goods wholesale), John Deere Limited (agricultural implement manufacturing), Beatty Brothers Limited (manufacturing farm equipment) and Edmonton Casket Company Limited (general warehouse).

At the same time, the C.N.R. began to be more rational in the location and operation of its trackage. In late 1928, a railway branch was constructed from Bretona to Clover Leaf at the eastern edge of the city (see Figure 4). The portion between Bretona and South Edmonton was then dismantled in the following year. By re-arranging this Camrose Subdivision and the so-called "Bretona Cut-off", all the north- and south-bound "through traffic" (i.e. that which did not necessarily have to enter Edmonton proper) was directed to run along the new track, bypassing the city centre. The reduction in time and operation costs were definitely significant.

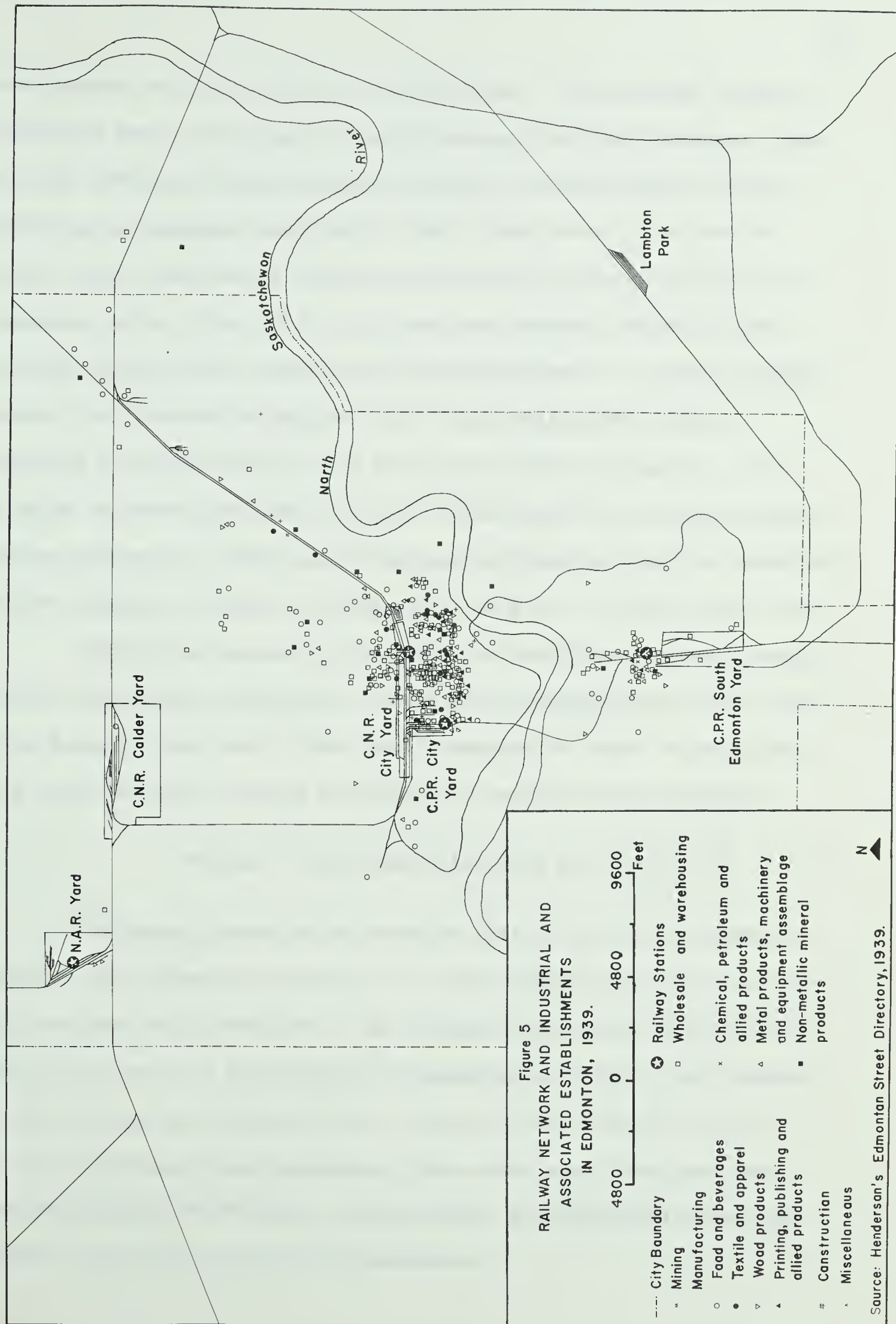
Meanwhile, the C.P.R. was also active in new construction. By August 1929, the Willingdon Subdivision was completed from Willingdon to South Edmonton. Several storage tracks were constructed at Lambton Park and at Clover Bar (see Figure 5). Some new industrial development was induced to locate in the South Edmonton area. In 1930, both the Canada Dry Company and the Provincial Government Works Department installed private sidings at their sites. Although these two new railway subdivisions -- Camrose and Willingdon -- at the eastern outskirts of the city did not cause any immediate industrial development, they did play an important role in governing the growth of the postwar chemical and petroleum complex in this particular area.

Late in 1929, the Northern Alberta Railway Company was incorporated under joint ownership of the C.N.R. and the C.P.R. to oversee the operation of the former Edmonton, Dunvegan and British Columbia Railway.⁵² Development of the city then again entered a period of stagnation. During the 1930's, unnecessary tracks continued to be abandoned and in 1936, the C.N.R. dismantled the branch between the 121st Street Junction and the Union Junction (see Figure 4). However, since the area adjacent to this track was still rather undeveloped, the city was hardly affected. In the same year, the C.N.R. southside depot was closed down due to the decrease in passenger and freight traffic.

To conclude the general development during the inter-war years, Figure 5 which shows the railway pattern and distribution of industrial and related activities in the city in 1939 has been prepared from the Henderson's City Directory and the returned questionnaires. Compared with the city in 1912 (see Figure 3), there was a general decrease of railway mainlines leading to the west and to the north, as duplicate tracks were removed. On the other hand, both the C.N.R. and the C.P.R. had constructed new trackages at the eastern edge of the city.

Within the urban community, there was a marked growth of industrial sidings especially near the city centre. The distribution pattern of industrial and associated activities was basically similar to that of 1912. The biggest concentration was still in the immediate central area. Nevertheless, the economic nucleus of the city was no longer confined to the few blocks from 101st Street. Instead, it had extended further

⁵²Ibid., pp. 624-634.



Source: Henderson's Edmonton Street Directory, 1939.

west towards the C.P.R. tracks at 109th Street. The majority of the industries here were engaged in metal working, food and beverages, flour milling, printing, woodworking and clothing. Although these various manufacturing premises were fairly widely distributed in the entire central area, there was a general concentration of flour mills at the immediate north of the C.N.R. City Yard, and another nucleus of the clothing industry near 104th Street and 102nd Avenue. A number of dairy plants also clustered along the C.P.R. line facing 109th Street. According to industrialists with knowledge of the early period, the majority of these firms near the city centre were, in one way or another, railway customers. While many firms were serviced by their own installed railway sidings, a number of other plants made use of public facilities.

Outside the current city centre, the North Edmonton meat packing complex was further intensified. Along the thoroughfares of 111th and 118th Avenues, some local ribbon developments also began to take place. They included a few hardware wholesaling firms and counter bakeries.

BUSINESS QUESTIONNAIRE ANALYSIS AND CONCLUSIONS

The above discussion has revealed that by 1939, the fundamental frame of the railway network and the initial land use structure of the city had been well formulated. The analysis of business questionnaires here will serve as a supplementary information to reflect the attitudes of the business men towards railway industrial and associated sites. Of the 321 returned questionnaires, sixty-three were from firms which were established before 1939. The following conclusions are therefore derived from these sixty-three respondents.

It should be noted at the outset that even up to 1939, the types of transportation employed in Edmonton were fairly diversified. The following table indicates the different modes of transportation used by industrial and related businesses.

It can be realized from Table I that railway transportation was essentially the dominant means of communication before the Second World War. The majority of the firms which used rail as their most important means of transport were engaged in the manufacturing and wholesaling of machinery, metal goods, food, livestock and hardware. They indicated that the railway was the most efficient and desirable way of movement. Accordingly, most of the raw materials for the manufacturing industries were brought in by railway carloads.

Trucks were numerically the second most important transportation means. Although the use of truck haulage on highways did not begin until after the Second World War, they had already started to become important for local deliveries in the mid 1920's. According to people with knowledge of the early city, local wagons pulled by horses were gradually replaced by motor trucks after 1926. Many firms also reported that rail was used for out-of-town communications, whereas trucks were used essentially for local distribution. In addition, trucks were especially important to businesses which involved only local transportation. Printing shops, furniture works and construction companies were examples which belonged to this category.

With the competition of truck services, the significance of horse-driven wagons was markedly curtailed. However, a few lumber yards, dairy companies and printing shops replied that wagons were still preferred

TABLE I

TYPES OF TRANSPORTATION USED BY INDUSTRIAL AND ASSOCIATED ACTIVITIES
IN EDMONTON PRIOR TO THE SECOND WORLD WAR

Types of Businesses	Types of Transportation							Others***
	Used as the most Important Means*		Used as the Second most Important Means**					
	Railway	Truck	Horse	Railway	Truck	Horse	Boat	
Manufacturing	20	4	4	4	11	3	4	2
Processing	1	1	1	0	0	0	0	0
Wholesaling) and)	26	2	3	0	11	5	4	0
Warehousing) Retail and)	3	0	1	0	3	0	0	0
Servicing	2	0	0	0	0	0	0	0
Total	52	9	9	4	25	8	8	2

*The total figure of this column is more than sixty-three because some firms indicated that more than one type of transportation was used as the most important means of movement.

** The total of this column is only thirty-seven because some firms did not indicate their second means of transport.

*** The total of this column is less than sixty-three because many firms did not have any other means of transport beside railroad and trucks.

for local circulation due to their cheaper rates. Other means of transport used were boats and aeroplanes. Boats were particularly used to reach the remote parts of the Northwest Territories.

Tables II and III were prepared to show the importance of transportation facilities in the choice of industrial and related sites in Edmonton before the Second World War.

As shown in Table II, twenty-nine respondents (47 per cent of the total replies) indicated that proximity to both rail and truck transport was an essential requirement in their original site selections. Most of these establishments were manufacturing and wholesaling firms dealing in machinery, equipment, food, livestock and hardware. The ten replies which indicated that proximity to rail but not road was an essential requirement were engaged in similar activities. Nearly all were located either at the city centre close to the C.N.R. City Yard, or in the vicinity of the southside C.P.R. marshalling ground. Another concentration, however, was clustered at North Edmonton where the former Grand Trunk Pacific Railway and Canadian Northern Railway main lines crossed each other.

The majority of the firms which replied that road accessibility but not rail was an essential site requirement were engaged in lumber working, construction, printing and auto repairing. Their trading areas were exclusively confined within Edmonton, and only very limited long-distance transportation was involved. These activities were generally distributed along the major thoroughfares such as 118th and 111th Avenues. Other firms which indicated that proximity to transportation lines was of no significance in their site selection were relatively small and localized businesses. Examples included counter bakeries, furniture workshops,

TABLE II

ABSOLUTE DEMAND FOR TRANSPORTATION FACILITIES IN THE CHOICE OF
INDUSTRIAL AND ASSOCIATED SITES IN EDMONTON
BEFORE THE SECOND WORLD WAR

Types of Businesses	Demand of Transportation			Proximity to neither rail nor road
	Proximity to both Rail and Road as an essential Requirement	Proximity to rail as an essential requirement	Proximity to road as an essential requirement	
Manufacturing	12	2	4	6
Processing	1	0	0	0
Wholesaling) General and)	13	8	4	4
Warehousing) Trucking Firms	3	0	2	0
Retail and Servicing	0	0	1	1
Total	29	10	11	11

auto-repairing, and printing shops. Their distribution in the vicinity of railways was thus governed by various site factors other than the transportation facilities.

Table III was prepared to bring out that proximity to transportation facilities was not the only consideration in industrial and associated sites. Other determining factors such as topography, space needs, price of land and buildings, and home-work traffic distances could influence site decisions as well.

TABLE III

RELATIVE IMPORTANCE OF PROXIMITY TO TRANSPORTION FACILITIES
IN INDUSTRIAL AND ASSOCIATED SITE SELECTIONS
IN EDMONTON BEFORE THE SECOND WORLD WAR

Types of Businesses	Proximity to Railway Transportation				Proximity to Road Transportation			
	1	2	3	4	1	2	3	4
Manufacturing	6	4	4	6	5	7	4	5
Processing	0	1	0	0	0	0	0	0
Wholesaling) General	6	11	3	8	2	10	3	8
and)								
Warehousing) Trucking Firms	0	1	1	1	3	0	0	0
Retail and Servicing	0	0	0	2	0	0	0	3
Total	12	17	8	17	10	17	7	16

1. As the most important requirement
2. As one of the important requirements
3. As a fairly important requirement
4. As a rather unimportant requirement

Among all these above-mentioned relative factors that governed the original choice of industrial and associated sites in Edmonton before the Second World War, easy transportation access was one of the most important. Most firms which regarded proximity to rail transportation as the most important or one of their important requirements were engaged in the manufacturing of food and beverages, metal and wood working, and the wholesaling of general merchandise or hardware goods. The majority of such firms also considered that proximity to truck services was of equal importance. They were therefore concentrated in the vicinity of the railway yards with easy road access. Some industrialists pointed out that many traffic problems which exist in to-day's automotive age were not found in those early days. Again, businesses which indicated that proximity to rail and truck services was a rather unimportant requirement were small-scale local operations. Counter bakeries, jewellery workshops and furniture firms were typical examples in this category.

CHAPTER III

LAND USE EFFECTS OF RAILWAY OPERATIONS AND COMPANY POLICIES

INTRODUCTION

The discussion in this chapter is basically focused on the traffic operations and administrative policies of the railway companies in Edmonton. These factors have been acting as economic and cultural influences on metropolitan land use development. An attempt is made to analyse the trends of the railway operations in the light of the growing use of truck services. The respective impacts of these two transportation means on the industrial land use pattern are then found to be quite different. The administrative climate created among the competing railway companies has also exerted some strong influences on industrial sites. Due to the limited amount of historical data which is available, most of the discussion here is confined to the post-Second World War years. However, some reasonably accurate trends of the railway operations and their effects on land use can be recognized.

TRENDS OF RAILWAY OPERATIONS AND LAND USE

For the Edmonton metropolitan area, the railways have been one of the principal transportation means providing a continuous nation-wide link. Since the advent of the first railroad, there has been a marked overall enlargement in the scale of operations and volume of traffic. Nevertheless, as the other competitive facilities -- passenger cars, buses, trucks, aircraft, and quite recently pipelines -- gradually came into use, the dominant position of the railways has been seriously challenged. These

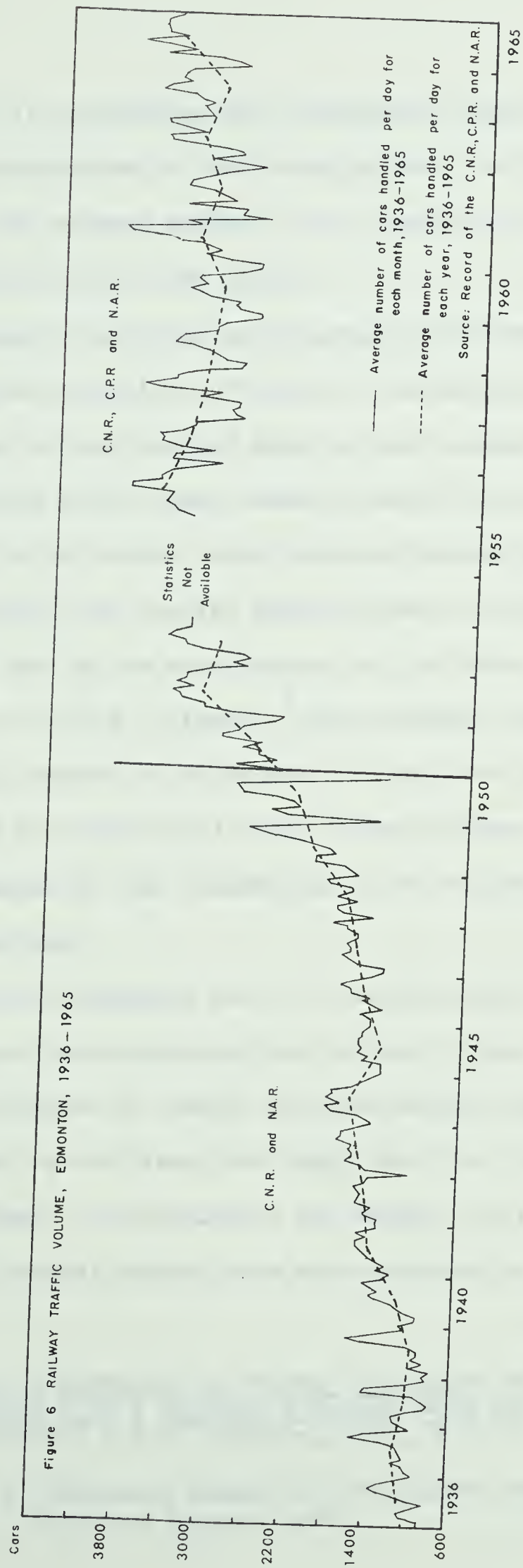
economic and technological changes have contributed to operation trends which are significant in the evolution of the morphology of Edmonton.

Absolute Volume of Railway Operations

Since the incorporation of the C.N.R. in 1919, Edmonton has been the Regional Headquarters for the Provinces of Saskatchewan, Alberta and British Columbia. In 1929, the head office of the N.A.R. was also established in Edmonton. The metropolitan area was then called the Edmonton Terminal, and the city became a hub from which trackage of the C.N.R., the C.P.R. and the N.A.R. radiated in all directions.

Figure 6 illustrates the average number of cars handled per day for each month from January 1936 to December 1965 in the Edmonton Terminal. The statistics of this graph include the absolute number of freight cars received and forwarded (i.e. the through traffic), and those cars loaded and unloaded in the city (i.e. the local traffic originating and terminating in Edmonton). These data also include the traffic interchanged among the railway companies.¹ It is unfortunate that although every possible attempt has been made to contact the C.P.R. local office and head office in Montreal, the desired statistics for a complete analysis of traffic volume do not date back earlier than 1951. Accordingly, the presentation here as shown on the graph is divided into two portions: the first half of the graph showing the average number of cars handled per day by the C.N.R. and the N.A.R. in each month during the period 1936 to 1949; and the second half of the graph indicating the same data but includes the C.P.R. records. Since more than 70 per cent of all the railway traffic in Edmonton is

¹Refer to pp. 72-74: "System of Car Interchange and Switching Limits."



handled by the C.N.R.,² it is believed that the general trends revealed will be reasonably representative for the total picture. To illustrate the mean annual trend, the average number of cars handled per day for each year has also been plotted in the same figure.

The first prominent fact shown on the graph is the seasonal fluctuation of the railway operations. There are some marked differences among the average number of cars handled daily in the various months. Basically, the busy period is the summer season between June and October, while the slack period is the winter months between November and February. In extreme cases as in 1950, the average amount of daily traffic in the peak period may exceed that of the slack period by 1,400 cars (see Figure 6). According to a C.N.R. official,³ this seasonal variation of traffic volume is mainly caused by the movement of grain and other agricultural products which is concentrated in the harvest season. The understanding of this phenomenon is thus fundamental to the analysis of the trends of railway operations.

The second readily recognized fact is the substantial increase of traffic volume throughout the twenty-nine year period between 1936 and 1965. A first slight increase in traffic occurred between 1941 and 1944 when Edmonton was chosen as a military and supply post for the construction of the Alaska Highway. In addition to the freight traffic of agricultural products, special railway cars were operated for handling

²C.N.R., Report on Expansion of Railway Facilities and Re-arrangement of Trackage in Conjunction with a Proposed Agreement with the City of Edmonton, unpublished record, C.N.R., Winnipeg, 1951, p. 1.

³Per. comm. L. A. Schuster, Industrial Development Representative, Mountain Region, C.N.R., Edmonton, August, 1966.

construction materials and equipment. Accordingly, there was an average increase of 16.3 per cent (230 cars) in the number of cars handled per day during the period 1941-1944.

The post-war economic and population expansion of Edmonton opened a new era for railway business. The continuous stream of immigrants, the discoveries of oil and minerals, plus the generally booming economy have created a tremendous growth in the scale of operations. As illustrated in Figure 6, the post-war booming trend started from 1949 when a significant number of oil-service industries and wholesaling and warehousing activities began to enter the city. The traffic volume then grew at an accelerated rate until the summer of 1956, when almost 4,000 cars were handled daily by all the railway companies in Edmonton (see the line showing the daily traffic means in each month, Figure 6). A moderate downward trend then followed until 1961, when the traffic volume began to rise again. The years between 1963 and 1965 continued this general increase and the traffic data in 1965 attained the highest level ever recorded in the preceding years. The peak of 4,053 cars in 1961 when compared with the traffic volume of the 1930's reveals that there is a very pronounced increase in railway operations during the last thirty years. Absolutely, this substantial growth indicates that the railway is one of the primary means of industrial freight transportation in Edmonton.

Looking into the internal structure of the railway operations, two types of traffic can be categorised: traffic handled through the metropolitan area (i.e. cars received and forwarded), and traffic originating or terminating in the local area. Since Edmonton is not a major manufacturing centre, the volume of cars loaded and unloaded locally is rather limited. In 1952 for instance, the ratio of through to local

cars was 50:50. In 1964, this had changed to 60:40.⁴ Most of the through traffic is handled on the Wainwright and Edson Subdivisions of the C.N.R. mainline. Consequently, the physical function of the Edmonton Terminal has been undergoing a gradual change. Besides serving as a marshalling centre, it is an even more important distributing headquarters than it was before for the Western Provinces.

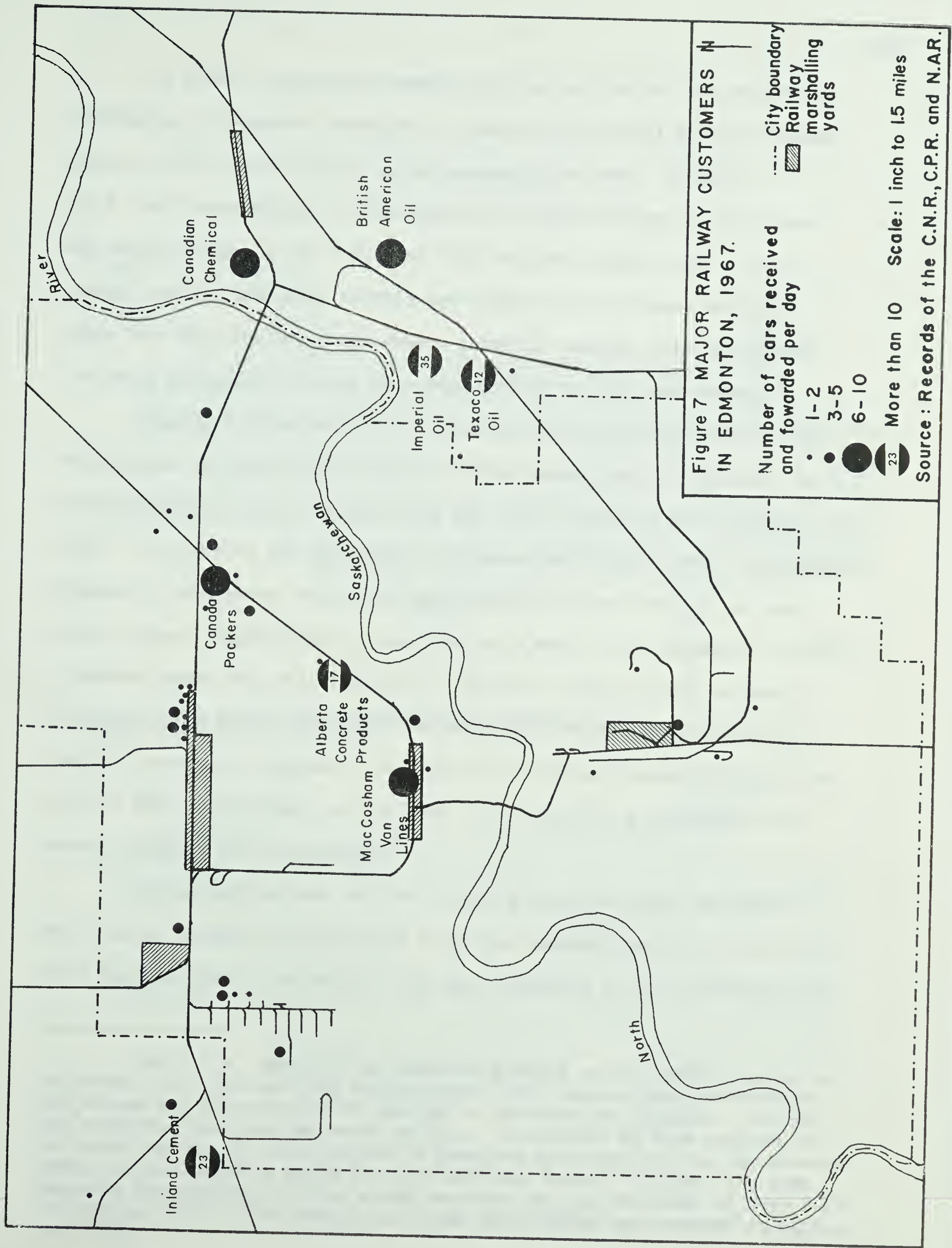
The major commodities in the railway shipments are agricultural, forest, mine and manufacturing products.⁵ As far as through traffic is concerned, a large proportion of loads are made up of the first three categories. Grain is by far the most important agricultural product transported both toward the East and the West Coasts. A recent trend in grain movement is that more traffic is directed from Saskatchewan to the Pacific Coast for overseas export. Lumber and woodpulp are the two main forest products. Their chief movements are from British Columbia to Eastern Canada and to the United States. However, the shipments of these two forest products have been markedly reduced since 1958 when the Pacific Great Eastern Railroad was extended to Dawson Creek and Fort St. John by the Provincial government of British Columbia. Attempts have also been made to have lumber loaded in cars which would be suitable for return west with grain loads. Flat cars are employed as well. As for mine products, bituminous coal which was once the dominant item has gradually lost its importance to other types of minerals. Potash, for instance, is trans-

⁴C.N.R., Edmonton Terminal Study, General Report, unpublished record, Edmonton, 1965, p. 58.

⁵All information regarding the types, amount and movement of commodities handled by the railway companies are based on Ibid., pp. 77-80.

transported from Saskatchewan to the West Coast. Under the Federal government's "Roads to Resources" program, the Great Slave Lake Railway was completed in 1964 to Pine Point, Northwest Territories, tapping the immense iron, lead and zinc deposits. Consequently, a large volume of iron ore condensates have been shipped daily to the East and the United States since 1965.

The commodities under the local traffic category are chiefly made up of goods consumed in Edmonton and the surrounding region. The raw materials and finished products of the metropolitan area's manufacturing industries are the remaining significant items. Most of these commodities, especially the latter category, tend to have the similar characteristics, that they are relatively bulky and space consuming. The distribution of the major industrial and associated firms in Edmonton which generate large volumes of local traffic is shown in Figure 7. The average number of cars which they ship and receive daily is also indicated. One of the most significant group of commodities which originates and terminates in Edmonton consists of materials related to the oil and chemical industries. A large volume of refined petroleum and chemical products is handled locally. Imperial Oil Company Limited, Texaco Oil Company Limited, British American Oil Company Limited and Domtar Chemicals Limited are the major consignees. A large volume of gravel and rock is also imported from northern Alberta for the concrete and cement industry. Another commodity which contributes a large number of local cars is the animal products of the meat-packing and processing plants. A minor volume of local traffic is made up of miscellaneous merchandise goods, which include everything from washing machines to furniture.



In order to grasp the complete picture of the railway operations in Edmonton, it appears necessary to analyse the general physical distribution of the traffic volume in the metropolitan area. Figures 8 and 9 are thus designed to illustrate the traffic flows of the inbound and outbound cars of the C.N.R. in 1952 and 1964 respectively. Both through traffic and local traffic are included in the data, and the years 1952 and 1964 have been chosen primarily because detailed surveys for these two specific years have been done by the railway company.⁶

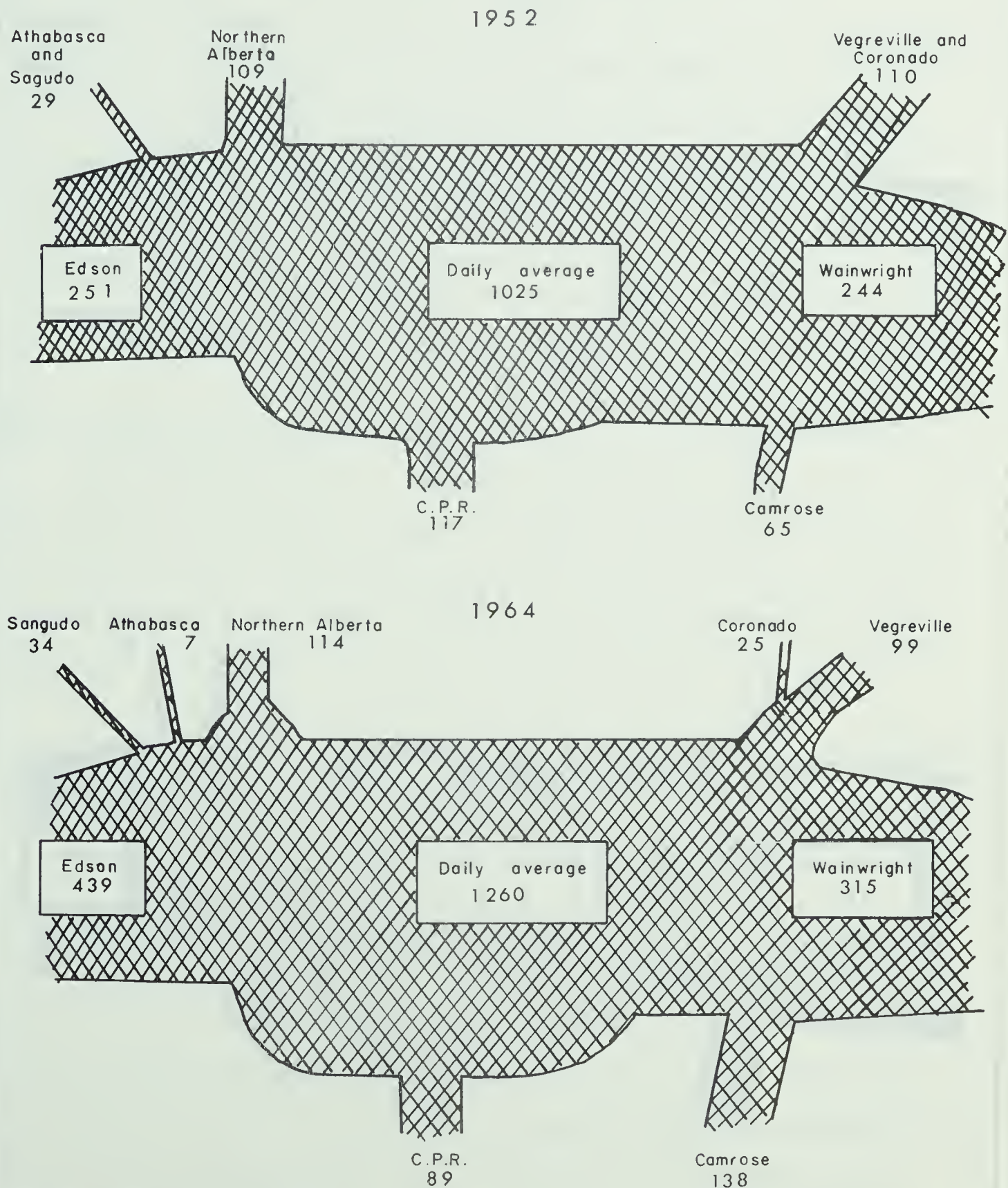
Figure 8 indicates that the daily inbound traffic from all the subdivisions of the C.N.R. in 1952 and 1964 respectively. In 1952, the average number of daily inbound cars was 1,025, compared with 1,260 in 1964. The lines of the Wainwright and Edson Subdivisions were the dominant feeders in both years, supplying approximately 60 per cent of the total traffic flow. Significant cities from which most of the eastbound traffic originated were Montreal, Toronto and Hamilton, while a large volume of westbound cars originated from Vancouver. The branch subdivisions of Sangudo, Athabasca, Coronado, Vegreville and Camrose accounted for 20 per cent in 1952, and 24 per cent in 1964. The remaining percentages were handled through the interchange.⁷

The general pattern of the inflowing cars for these two years was thus as follows: about 45 per cent from Eastern Canada, 40 per cent from the West Coast, and about 8 per cent from each of the Northbound and

⁶The C.N.R. directed two detailed studies on the traffic situation of Edmonton in 1952 and 1964 respectively. The purpose was to determine the volume and distribution of traffic in the Edmonton Terminal. In 1952, the study was done for the month of June. The number of cars handled on the mainline and all subdivisions in Edmonton were counted, and the average number of cars handled daily for the month was found. In 1964, the same approach was adopted, but the study was done for the two weeks of June 8-14 and October 15-21. The details of these two studies are recorded in Ibid., pp. 57-65.

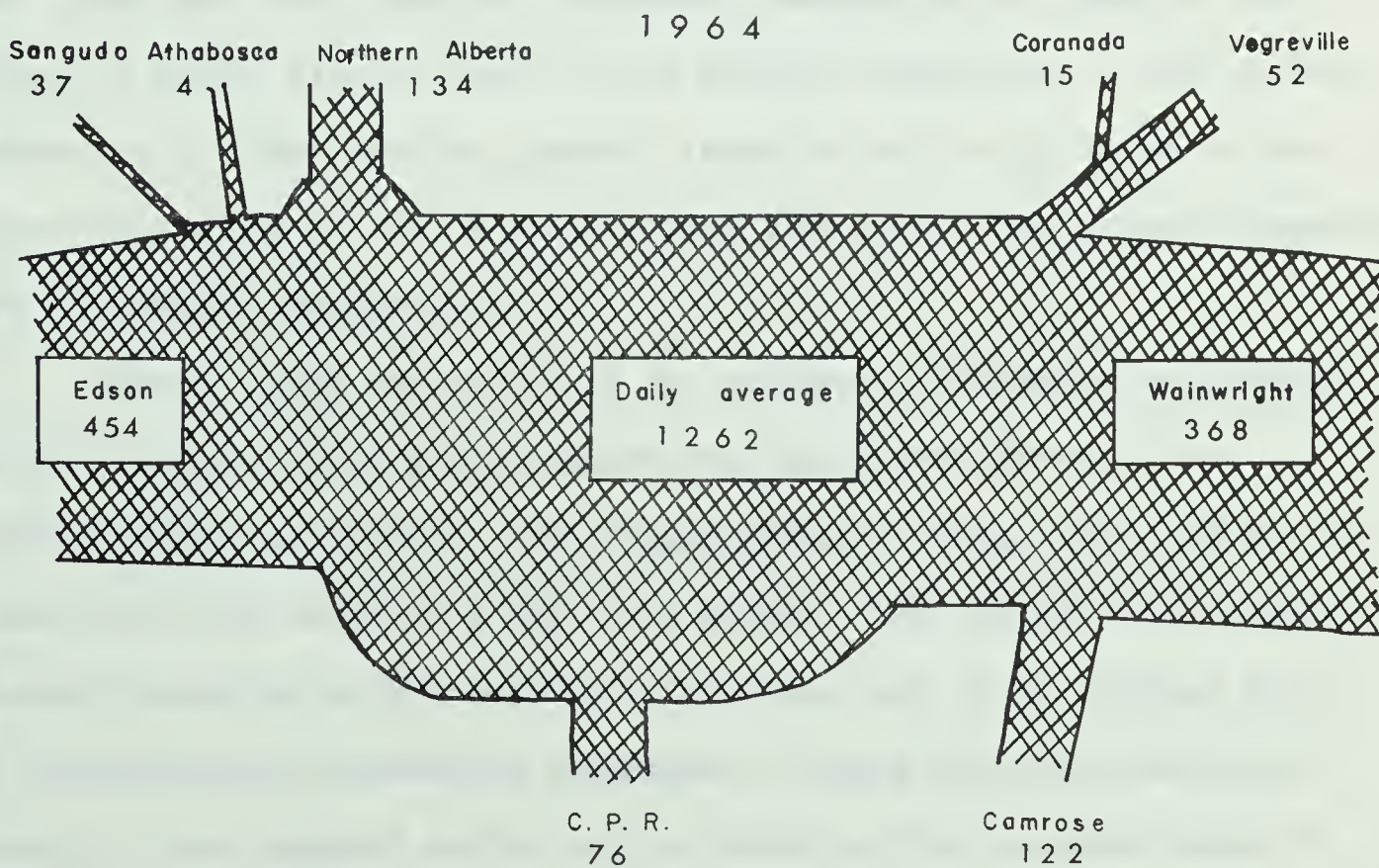
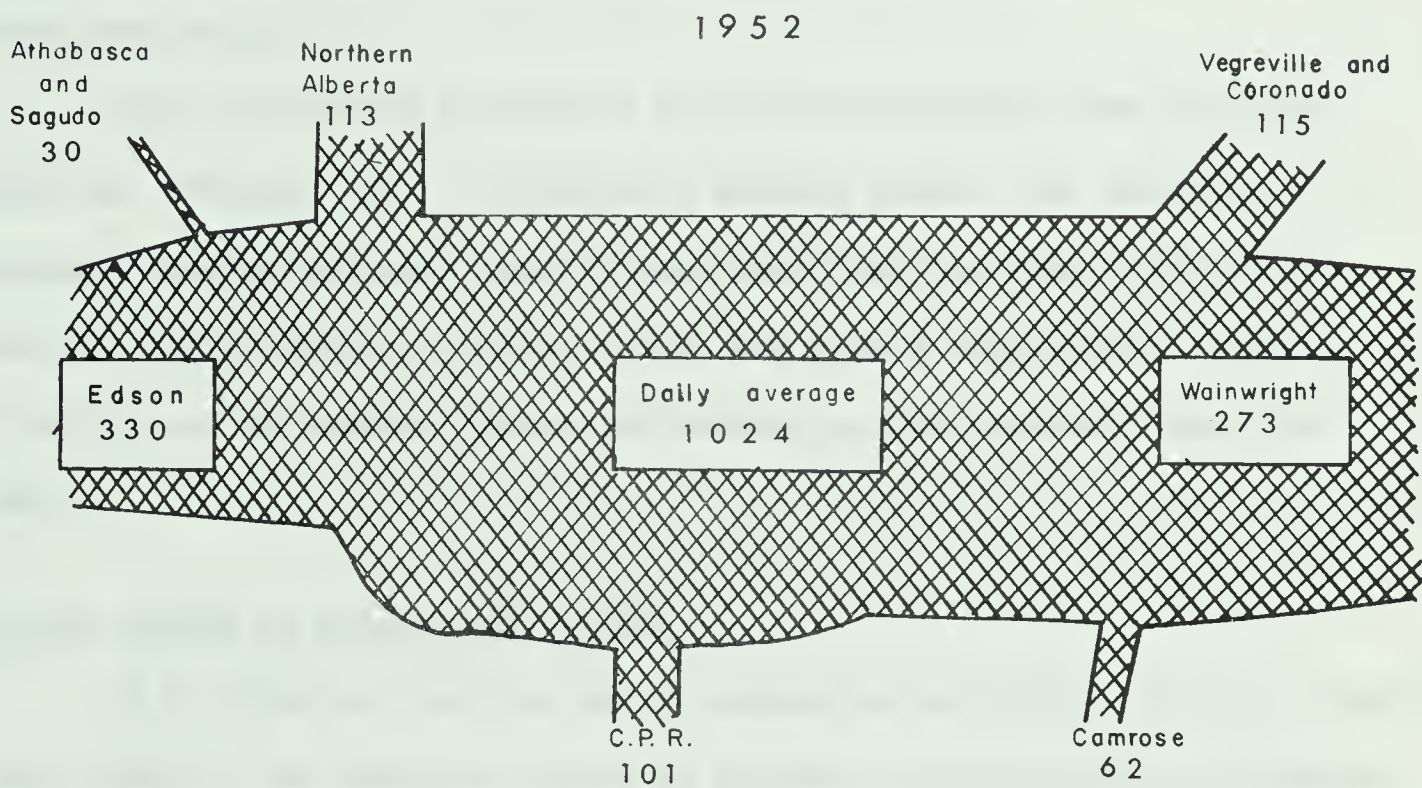
⁷See pp. 72-74.

Figure 8 INBOUND RAILWAY TRAFFIC FROM ALL SUBDIVISIONS,
C.N.R., EDMONTON.
(Measured in number of cars handled per day)



Source: C.N.R. record, Edmonton.

Figure 9 OUTBOUND RAILWAY TRAFFIC FROM ALL SUBDIVISIONS,
C.N.R., EDMONTON
(Measured in number of cars handled per day)



Source: C.N.R. record, Edmonton.

the Southbound connections respectively. The only significant difference between these two years, however, was the increased volume of the Camrose Subdivision traffic at the eastern edge of Edmonton. Due to the industrial development in that area, the number of cars handled in 1964 was double that of 1952.

The distribution pattern of the outbound traffic flow as illustrated in Figure 9 exhibits a similar model. The mainline trackages towards the more densely populated East and West Coasts were again the major traffic outlets. There was also a substantial increase of traffic on the Camrose Subdivision because of the post-war industrial growth.

Relative Volume of Railway Operations

It is believed that the above discussion has pointed out the general upward trend of the absolute volume of railway transportation in Edmonton. Since there are other types of industrial transportation, however, consideration should also be given to the relative importance of the railway operations. In this section, special attention will be given to a comparison of railway and truck services, as they are by far the most important means of freight transportation.

Shortly after the advent of the railways, transportation through overland trails and the North Saskatchewan River were proved to be inefficient and undesirable. The Calgary-Edmonton Stage Coach was put to an end, and river boats also fell into disuse. The railway then attained a monopoly position in transportation from the turn of the century until the introduction of trucks and aeroplanes. During the early twentieth century, it was regarded as the only satisfactory and economic means of

movement. In the 1920's, motor vehicles and commercial trucks began to become more popular in Edmonton. As indicated by people with knowledge of the early period, motor trucks were used as a means of commercial transportation only for local delivery within the city. This new machine gradually replaced horse-drawn wagons in the urban area.

Since the Second World War, however, a completely new trend in freight traffic was created by technological advancements. The extensive construction of inter-city and transcontinental highways is one of the major factors responsible for the recent changing transportation pattern. In 1930, there were only 3,199 miles of highways in the Province of Alberta.⁸ In 1939, it had increased to 3,853 miles⁹ and in 1965 there was a total of 5,500 miles.¹⁰ Roads leading to remote areas were also paved to aid their economic development. With such well constructed highway systems, trucks are able to function as another long-haul industrial carrier over the whole North American continent. The railways are therefore no longer the only economic and efficient means of commercial and industrial transportation.

From the industrialists' point of view, trucks have many advantages over the railways. They pick up goods at the warehouses of the shipper, and deliver them at the factories of the consignees. This eliminates transfers to and from freight cars, and saves time and expenses.

⁸Alberta, Department of Public Works, Annual Report, 1930, Edmonton, p. 4.

⁹Idem, Annual Report, 1939, Edmonton, p. 5.

¹⁰Alberta, Department of Highways, Annual Report, 1965, Edmonton, p. 6.

The unit of sale -- a truckload or less -- is smaller than a carload, and many consignees prefer to receive goods in small lots. Truckers can usually give more frequent deliveries than the railways. For relatively short distances, trucks are faster than trains mainly because they do not have to contend with delays in terminals at origin and destination. This time element is especially significant to some food wholesaling businesses which involve transportation of perishable goods such as vegetables. All these economic and convenience advantages then contribute to provide a growing volume of truck traffic especially since the 1950's. Figure 10 has been prepared to illustrate the average volume of commercial truck transportation in Edmonton in 1965. The Provincial Highway Department of Alberta recorded that, on average, 5,294 trucks entered or departed from Edmonton daily in 1965.¹¹ Most of the traffic was on Highway 2 which leads to the transcontinental highway via Calgary, and on Highway 16 West.

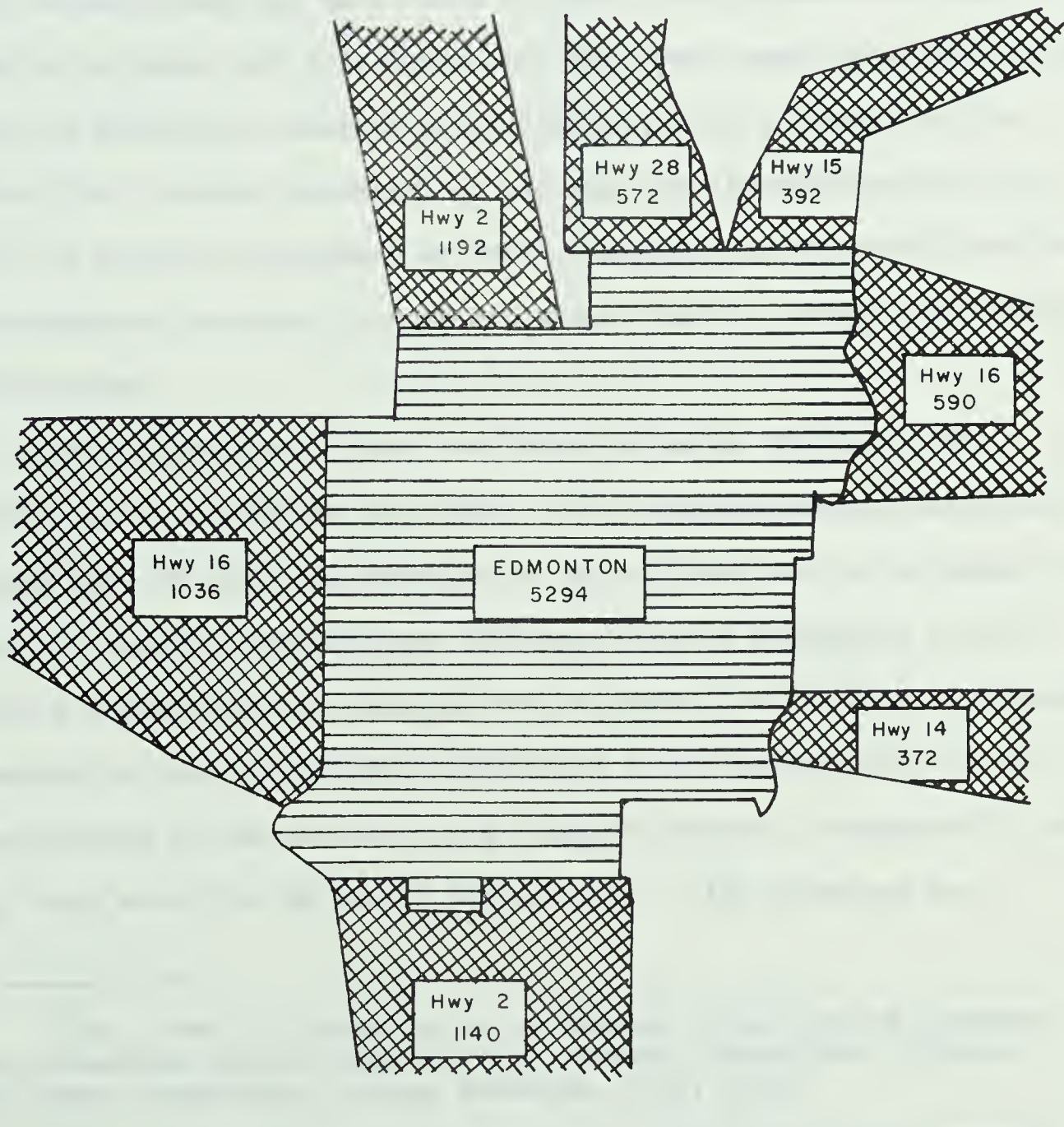
Although the importance of the railway in the freight traffic field is relatively declining, it still retains its function as a long-haul carrier for bulky goods. In the face of truck competition, the companies have simplified their door-to-door services. They have consolidated their less-than-carload and express services,¹² with the objectives of cutting

¹¹Idem, Average Annual Daily Traffic Record, unpublished document, Edmonton, 1965.

¹²Less-than-carload services are new devices of freight movement offered by the railway companies since the end of the Second World War. In addition to shipments in carloads, the customers can ship their goods in smaller lots -- less than a carload. In 1961, the C.N.R. in Edmonton consolidated its express and less-than-carload operations, and the facilities for this combined "Express-Freight Services" were located on 104th Avenue between 101st Street and 104th Street.

Figure 10
VOLUME OF COMMERCIAL TRUCK TRANSPORTATION
IN EDMONTON, 1965

(Measured in number of trucks entered or
departed from Edmonton per day)



Source: Highway Department, Province of Alberta, Edmonton.

costs and speeding up deliveries. Railway traffic moves faster than before because of diesel locomotives and modern yard facilities. The companies have also "tailored" various types of freight cars to meet the individual needs of the industries. The tri-level auto-cars capable of carrying up to fifteen automobiles is a typical example of their technological improvements. Railways have cut many rates so that in the movement of bulky freight in carloads over long distances, they have lower costs than trucks. A number of cement and concrete manufacturing plants in Edmonton, for instance, find it more economical to use rail for importing gravel and sand.¹³ In addition, piggyback or trailer-on-flat car services¹⁴ combine the advantages of carriage by rail and truck, and have grown very rapidly in recent years.

Both railways and trucks are therefore major transportation facilities complementary to each other. The returned questionnaires also indicated that the specific function of the railways can not be completely replaced by trucks. The Edmonton District Planning Commission in 1958 directed a survey on the sources of raw materials, the methods of transport and markets of the manufacturing industries in the metropolitan area.¹⁵ The percentages of raw materials and finished products transported by rail and by truck were also estimated respectively. (Air transport was

¹³Per. comm. G. Richards, Sales Manager, Consolidated Concrete Limited, Edmonton, July, 1966; and R. A. German, Sales Order Officer, Inland Cement Industries Limited, Edmonton, July, 1966.

¹⁴Piggyback services are another new device of freight movement introduced since the last twenty years. The loads for shipment are put into large trailers which can be hauled by railways when placed on railway cars, or by trucks if placed on flat cars.

¹⁵Edmonton District Planning Commission, Economic Base Survey for the Edmonton Metropolitan Area, Edmonton, 1958, pp. 19-20.

proved to be negligible, and pipelines movements were not included.) The results of this survey are summarized in Figure 11. The importance of the Region as a market, and the Province and the Nation as a source for raw materials is readily recognized. Generally, rail was used for long distance haulage, while trucks were used for relatively short distance traffic. A considerable volume of raw materials (44 per cent) which came from the nation and the province were thus imported by rail, while only 24 per cent of the finished goods were delivered by rail. As the majority of the manufactured products (62 per cent) were consumed in the immediate region of Edmonton, trucks were responsible for distributing 76 per cent of these commodities. Although no similar statistical survey has been undertaken since 1958, it is felt that this transportation trend has been intensified in recent years. Except for the less-than-carload traffic, the railways at present are used nearly exclusively for long-haul shipment of bulky and low-value materials. Truck haulage, on the other hand, has continued to increase its relative importance. It is estimated that to-day, more than 80 per cent of the readily consumed goods either manufactured in Edmonton or imported from other parts of the nation are distributed to the immediate region by trucks.¹⁶

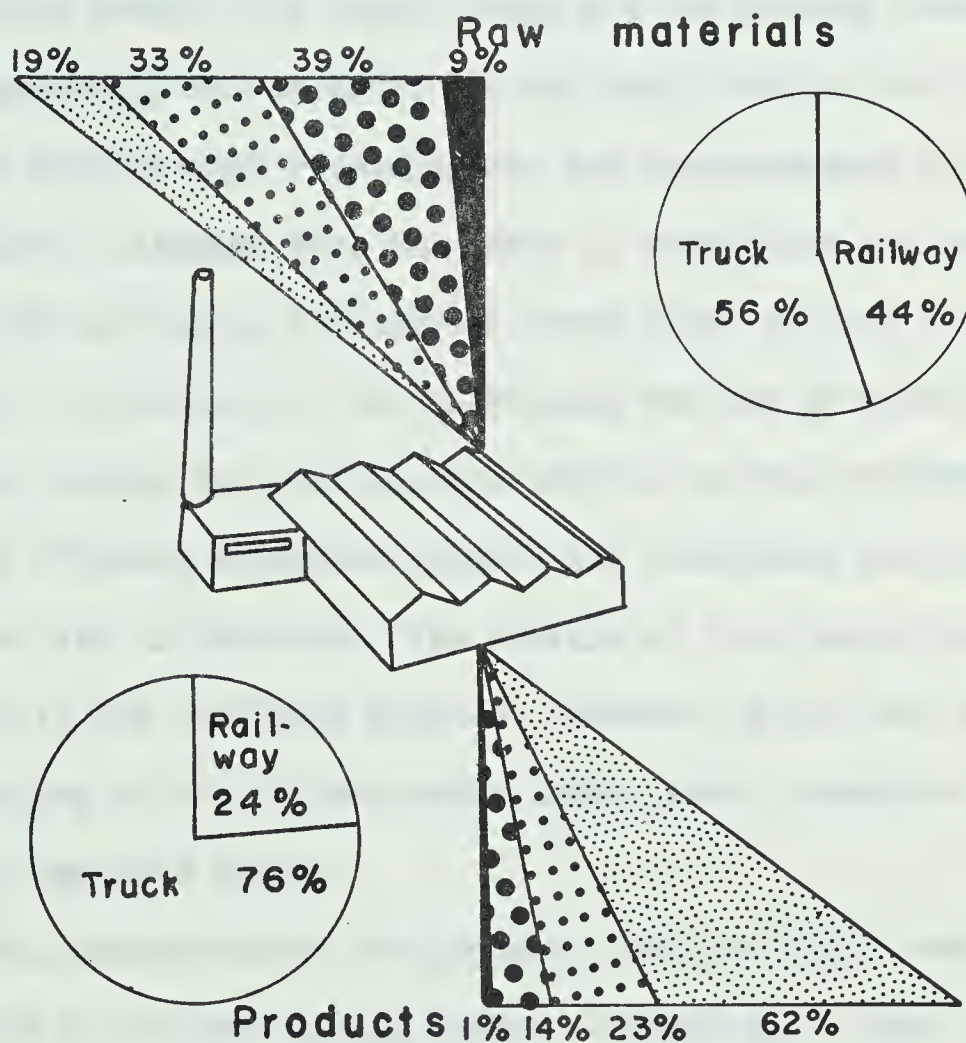
Land Use Effects

From the above analysis, it is obvious that while the absolute volume of railway traffic has been substantially increasing, its relative importance in the freight traffic field has been declining. What then

¹⁶Per. comm. J. N. Shortliffe, President, MacCosham Van Lines Limited, Edmonton, July, 1966.

Figure II

Manufacturing Industries In Edmonton, 1958—
Source of raw materials, methods of transport and markets

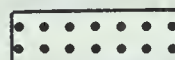


Key

Region (City of Edmonton & area within 20 mile radius)



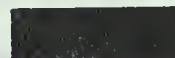
Province (Alberta)



Nation (Canada)



Foreign



Source — Edmonton District Planning Commission

are the land use effects of this phenomenon?

The most prominent consequence of the increased absolute traffic volume is the inefficiency of the existing railway facilities. The areal space of the marshalling yards becomes inadequate. The functional layout of the classification tracks, the engine shops and the storage tracks, etc. is congested and generally out-of-date. In the early 1950's, the railway companies began to realize that redevelopment and rearrangement of their yards were necessary. Attempts were then made to reorganise the internal yard facilities, and to utilize intensively every piece of land in their marshalling ground. In addition, they introduced the use of diesel locomotives, short wave radios and centralized traffic control systems.

In 1952, a "Planned Expansion Scheme" was undertaken jointly by the C.N.R. and the City of Edmonton. The details of this master project will be dealt with in the following chapter. However, since this scheme includes some problems of the railway-owned lands, some discussion will be given here on this specific aspect.

Through this comprehensive development plan, the C.N.R. was able to expand the areas of its marshalling yards. Accordingly, there has been a considerable increase in the amount of transportation land use in the metropolitan area. The company at that time had two major yards in the city: the Calder Yard, with a capacity of 1,286 cars; and the City Yard, with a capacity of 524 cars.¹⁷ Most of the marshalling work was done at Calder while the City Yard acted as a supporting ground for the industrial area in the city proper. The Calder Yard was physically limited to trains of a maximum length of seventy-two cars, but the company was frequently

¹⁷All data of yard capacities and length of cars mentioned in this section are obtained from C.N.R., op. cit., pp. 35-56.

required to yard trains up to 100 cars. In the "Planned Expansion Scheme", the Calder Yard was extended eastward to accommodate trains up to 115 cars. To relieve part of the work load at the yard, a storage and supporting ground was established east of 97th Street and extending to 82nd Street on the Calder Mainline. This ground was later used for the piggyback operation. In view of the oil and chemical industries developed at the eastern edge of Edmonton, the company also constructed a storage and switching yard at Clover Bar in late 1954.

The increased railway traffic volume of the post-Second World War period has therefore created a greater demand for transportation land use in Edmonton. Consequently, more urban land has been consumed by the extended railway yards and the newly established right-of-way and marshalling ground. Since 1954, however, there has been very little change in the amount of land occupied by railway facilities. There are at present five marshalling yards in the metropolitan area: the Dunvegan Yard of the N.A.R., the South Edmonton Yard and the Edmonton Yard of the C.P.R., and the Calder Yard, the Clover Bar Yard and the City Yard of the C.N.R. (see Figure 12). Within the present limits of the city, 452 acres of land is occupied by railway right-of-way, while 634 acres is taken by marshalling yards. The sum of railway transportation land use is approximately 2 per cent of the total area (54,784 acres) of the city.¹⁸

Although general improvement in railway operations has been

¹⁸All statistics of the amount and various uses of the land owned by the railway companies in Edmonton are obtained from City of Edmonton, Department of Assessment, Edmonton, 1966.

achieved since the Planned Expansion Scheme in 1952, existing yard facilities are again declining in efficiency due to the even greater volume of railway traffic in recent years. Tracks at the Calder Yard, for instance, can not be assigned a permanent classification, because there are now more classifications required (fifty to sixty) than the thirty-two tracks available; and cars must be held wherever space exists.¹⁹ As a result, this creates extra movement in passing these cars from track to track and from yard to yard. Both the C.N.R. and the C.P.R. feel that further extension or complete relocation of their marshalling ground is desirable. They are now considering respectively the possibility of consolidating their own facilities to an overall co-ordinated plan. Their future yard extension, if carried out within the city, may take up an even larger portion of urban land.

The relative decline of railways in the freight traffic field also exerts a strong influence on the urban land use structure of Edmonton. As discussed above, trucks have been becoming a more efficient and popular means of transportation since the Second World War. This shift in modes of transport has consequently created some land use problems in the early established industrial and wholesaling areas. Such areas which were originally railway-oriented are not prepared for the technological change. The old street systems are thus insufficient and inefficient for handling the increased volume of truck traffic. The loading and unloading facilities become out-of-date. The industrial and wholesaling district in the city centre is a typical example of such functional obsolescence.

¹⁹C.N.R., op. cit., p. 45.

Actions of urban renewal should then be applied to cope with the changing transportation demands. As has already occurred in many other American cities,²⁰ there has been a general trend for industrial and associated firms to relocate at the periphery of the city. These peripheral areas also become the sites of many recently established businesses. The transportation pattern in these areas is well organized to provide easy accessibility to both railways and highways. The Dominion industrial estate and the recently developed Strathcona Industrial Park, for example, possess these desirable facilities. More specific problems of the railway network and industrial sites since the last World War will be discussed in the following section in conjunction with the analysis of the business questionnaires.

Business Questionnaire Analysis

An attempt is made here to analyse the trends of railway operations compared with that of truck services on the basis of the returned questionnaires. Their respective influences on the distribution of industrial and associated activities will also be investigated. It is believed that such an analysis will clarify the attitudes of the industrialists and wholesalers in the metropolitan area. Since the general shift of transportation means from rail to truck occurred primarily after the Second World War, and since the traffic situation before 1939 has already been reviewed in Chapter II, the following discussion will concentrate on the post-Second World War years.

Table IV illustrates the different types of transportation used

²⁰Read, for example, C. C. Colby, "Centrifugal and Centripetal Forces in Urban Geography," in H. M. Mayer and C. F. Kohn (ed.), Readings in Urban Geography, Chicago, 1959, pp. 331-345.

TABLE IV
TYPES OF TRANSPORTATION USED BY INDUSTRIAL AND ASSOCIATED ACTIVITIES
IN EDMONTON SINCE 1939

Types of Businesses	Types of Transportation											
	Used as the most Important Means*				Used as the second most Important Means ^Δ				Used as the third most Important Means ^o			
	Rail	Truck	Aeroplane	Horse	Rail	Truck	Aeroplane	Horse	Rail	Truck	Aeroplane	Horse
Manufacturing	28	98	0	0	86	24	9	1	7	0	15	1
Processing	5	6	0	0	1	1	0	0	1	0	1	0
Wholesaling and Warehousing												
General - Trucking	36	64	5	0	29	21	2	0	2	1	19	0
Firms - Servicing and	4	18	0	0	9	1	1	0	0	1	3	0
Retailing -	10	27	0	0	18	8	1	0	1	0	8	0
Total	83	213	5	0	143	55	13	1	11	2	46	1

*The total figure of this column is more than 287 because some firms indicated that more than one type of transportation was used as the most important means of movement.

Δ The total of this column is less than 287 because some firms did not indicate their second means of transport.

The total of this column is less than 287 because many firms did not have any other means of transport beside railroad and trucks.

by industrial and associated activities since the last World War. Of the total of 321 respondents, 287 answered this specific question. Two hundred and twenty-seven of these replies were from firms which were established after 1939, while the remaining sixty businesses were opened before 1939.⁶ The analysis here is then derived from these 287 replies.

It is obvious that while railways and trucks have been the dominant means of movement, air transportation has also emerged as the third most significant means. On the other hand, the use of horse-driven wagons and boats has been completely eliminated in modern society. Comparing the relative importance of truck and rail services, 213 replies (74 per cent of the total returns) indicated that trucks have been used as the primary means of transport at some time since 1939. About 50 per cent of the total replies (143 firms) also indicated that railways have been their second most important form of movement. These statistics therefore confirm the general statement that truck transportation has become more important to a greater number of businesses than the railways since the end of the Second World War. Nevertheless, the functions of the railways have never been completely taken over by trucks: eighty-three firms (29 per cent) reported that railway services are still their most important means of transportation.

With regard to manufacturing activities, the replies revealed that since the Second World War, truck services have been the most important means of movement, followed by rail services. Most firms which indicated this general trend are engaged in metal fabrication, machinery and equipment assemblage, oil services, manufacturing of non-metallic mineral products and construction. Over 70 per cent of these businesses have been

established since the early 1950's, and are located in peripheral areas of the city with convenient access to highway systems.

Twenty-eight manufacturing firms (22 per cent of the total manufacturing businesses), however, have been using railways as their primary means of transport. Examples are metal working firms, construction companies, machinery shops and a chemical plant. The majority of them are located in east and south Edmonton. They indicated that rail services have been favoured mainly because their raw materials and products are relatively bulky, and railway cars are better suited for their specific purposes. A chemical firm, for instance, imports turpentine from the United States by railway tank cars, which are specially designed for its needs.

The increasing importance of air transport to the manufacturing industries can also be deduced from Table IV. Of the fifteen establishments (12 per cent) which indicated that aeroplanes have been their third most important means of transport, four are construction firms and another four are concerned with machinery and equipment assemblage. In most cases, air transport has been used when speedy delivery is urgently required.

Respondents from the processing-industrial plants indicated that railways and trucks have generally been used as equally important means of transportation. These firms are mainly involved in processing agricultural products such as grains and cattle. Very often, their raw materials are brought in by rail and their finished products distributed by trucks, or vice versa. They are generally concentrated near the city centre, in south Edmonton and north-west Edmonton.

Replies from the general wholesaling and warehousing establishments showed that trucks have been used to a slightly greater extent than rail.

Firms which conform to this general trend are mainly machinery and food wholesaling companies. In one case, it was reported that trucks have been chosen as the primary means of transport, not only because of their faster and more convenient services, but also because of the careful handling required for delicate instrument products. On the other hand, thirty-six firms (37 per cent of the total general wholesaling businesses) denoted that rail has been used as the most important means of transport. The majority of this group are wholesalers of construction materials and food, which involve longer haulage of relatively low-value goods. However, eight firms (four food wholesalers and four equipment companies) indicated that they have been using both rail and truck services to a more or less equal extent. In general, then, railways and trucks are complementary to each other in the wholesaling and warehousing business. In other words, a large amount of goods are imported by rail and distributed by trucks to the local and regional markets of Edmonton.

For a few establishments which handle perishable or valuable goods (5 per cent of the respondents from the wholesaling firms), air services have been treated as the primary means of transportation. Tropical Gardens Wholesaling Florists Company Limited, for instance, considered that air travel is the most efficient and suitable way for moving their commodities. Accordingly, this firm has been located in south Edmonton along the 104th Street thoroughfare which provides the most convenient access to the International Airport. Nineteen firms (19 per cent) have also been using aeroplanes as their third most important means of transport.

All the trucking and storage companies which were contacted indicated that trucks have been their major means of transportation.

Nevertheless, their businesses are surprisingly dependent on railway facilities. While most of them pointed out that railways have been their second most important means of transport, four companies stated that rail and truck services are equally vital to their operations. In general, these establishments provide transcontinental services, and are located along major thoroughfares, such as 104th Avenue or 104th Street in south Edmonton, with easy access to railway trackages.

As for retail and servicing businesses, twenty-seven firms (75 per cent of all the servicing and retail firms) have been using local trucks as their most important means of movement. These include a number of equipment, machinery and auto-repair shops, and building supply companies. In most cases, railways have been their second most important means when the need arises. In addition, some auto-sales companies mentioned that they have been using rail services quite intensively since the introduction of "tri-level" railway cars, which can accommodate up to fifteen automobiles at a time. A few equipment-repair firms have also been using air transport occasionally when speedy deliveries are required.

Tables V and VI have been compiled to illustrate the influences of transportation facilities on the choice of industrial and associated sites in Edmonton after the Second World War. Of the 321 replies, 258 were from businesses which were established after 1939. However, only 232 firms reported whether proximity to rail and road services was an essential requirement in their original choice of sites (see Table V). Table VI was prepared to further illustrate that transportation is not the only consideration in the selection of industrial and associated sites. Accordingly, among all the other interacting site factors, transportation accessibility

TABLE V

DEMAND FOR TRANSPORTATION FACILITIES IN THE CHOICE OF
INDUSTRIAL AND ASSOCIATED SITES IN EDMONTON SINCE 1939

Demand for Transportation				
Types of Businesses	Proximity to both rail and road as an essential requirement	Proximity to rail alone as an essential requirement	Proximity to road alone as an essential requirement	Proximity to neither rail nor road
Manufacturing	27	2	35	34
Processing	1	0	0	4
Wholesaling) and) Warehousing)	General 18	2	25	18
Firms	3	0	7	4
Retail and Servicing	1	0	23	28
Total	50	4	90	88

TABLE VI

RELATIVE IMPORTANCE OF PROXIMITY TO TRANSPORTATION
FACILITIES IN INDUSTRIAL AND ASSOCIATED
SITE SELECTION SINCE 1939

Relative Importance of Transportation Facilities									
Types of Businesses	Proximity to Rail Transportation				Proximity to Road Transportation				
	1	2	3	4	1	2	3	4	
Manufacturing	4	23	5	49	7	42	17	23	
Processing	0	1	0	0	0	1	0	0	
Wholesaling) and)	General	7	11	5	27	6	23	20	10
Warehousing) Firms	Trucking								
		1	1	1	8	7	3	1	2
Retail and Servicing		0	0	4	34	5	8	11	13
Total		12	36	15	118	25	77	49	48

1. As the most important requirement

2. As one of the important requirements

3. As a fairly important requirement

4. As a rather unimportant requirement

can be evaluated only in a relative manner. Numerically, 181 firms indicated the effect of the railway services, and 199 businesses reported the importance of truck transport in their original site selections in Edmonton after 1939 (see Table VI). Since the information displayed by Tables V and VI is essentially similar, both tables will be examined simultaneously.

The intimate relationship between transportation and industrial and associated sites is readily shown in Table V, as fifty firms (21 per cent of the respondents) indicated that proximity to both rail and truck services was an essential requirement in their selection of original sites. With but six exceptions, all these businesses have installed private railway sidings and are located close to trucking facilities. However, the dominant significance of the sites is markedly reduced: only four companies reported that rail accessibility alone was an essential requirement (see Table V); and 118 firms indicated that the railroad was relatively a rather unimportant requirement (see Table VI). It is obvious then, that other site factors have edged out the early influence of the railways. Many manufacturing and wholesaling firms also pointed out that sufficient space for expansion has been their most vital consideration.

As alluded to above, the post-Second World War trend of industrial and related site selections was towards highway-orientation. This fact can also be deduced from Table V, as ninety firms (39 per cent) regarded proximity to truck services alone as an essential site requirement. In Table VI, likewise, seventy-seven returns indicated that road accessibility was one of the important factors which have influenced the choice of sites. Although some of these premises have been using the railways, only a

minority install private spurs. In most cases, public railway facilities have been used instead. In Table V, eighty-eight firms (38 per cent of the replies) stated that neither rail nor road transport had any influence on their selection of original sites. Most of these businesses serve a rather local market within the city, and some were only small offices when they were first established.

A closer look at the returned questionnaires shows that proximity to transportation is in greater demand for manufacturing, processing, wholesaling and warehousing activities than for the general retail and servicing companies. As shown in Table V, twenty-seven manufacturing firms (28 per cent of the manufacturing industries) reported that proximity to both rail and road services was an essential requirement in their site selections. The majority of them are manufacturers of oil and chemical products, building materials, non-metallic mineral goods, sheet metal, machinery and equipment, food (particularly meat processing) and beverages. These firms also reported that rail and road accessibility was relatively an important consideration in their choice of sites. All these firms are therefore located on peripheral sites, especially in the eastern and southern edges of Edmonton. Only three operations in this category are not serviced by private railroad sidings.

There were two industries which indicated that proximity to a railroad and not highways was the essential determinant in their original choice of sites in 1948 (see Table V). One is a food manufacturing plant and the other dealing with electrical equipment. In recent years, however, both of them have moved from the city centre to north-west Edmonton where better road facilities are available.

On the other hand, thirty-five industries (36 per cent) regarded road accessibility alone as an essential site requirement. As shown in Table VI, forty-two firms (47 per cent of the manufacturing industries) also replied that among all the factors which have affected their choice of sites, road transport was relatively an important consideration. The majority of these highway-oriented establishments are engaged in servicing the oil drilling industry, in construction and in printing. Accordingly, most of them are distributed at the southern and north-western outskirts of the city with convenient highway access at hand. The railway tracks in their vicinity had rather little influence on their choice of sites.

Thirty-four industries (35 per cent of the manufacturing firms) replied that in their original site selections, proximity to rail and road was not at all an essential requirement. Counter bakeries, printing shops and some local furniture works account for most businesses in this category. The forty-nine respondents and twenty-three replies which considered rail and road services as a rather unimportant requirement respectively (see Table VI) are also engaged in similar types of activities. Some printing firms explained that economic benefits derived from proximity to customers is the most important factor in their site selection. In addition, a few construction firms also pointed out that proximity to transportation systems was not an essential requirement, as their businesses take place at various "job-sites" depending on the assignments of their customers.

Since respondents from the processing activities are relatively limited, no detailed analysis of their distribution in relation to transportation facilities will be attempted here. Nevertheless, most food processing-manufacturing firms indicated that both rail and road services were essentially and equally required in their original choice of sites.

In regard to general wholesaling businesses, eighteen firms (29 per cent of the respondents from the wholesalers) considered proximity to both rail and truck services as an essential site requirement. Most of them handle construction materials, food, chemical goods and furniture. As already mentioned, convenience to rail services was more important to the building-material and food companies than to the other types of wholesalers. This general statement is further confirmed by the eleven firms dealing with similar types of activities (see Table VI), which indicated that railway accessibility was relatively an important factor in their choice of original sites. However, the trend towards highway orientation is also markedly shown in Table V, as twenty-five firms (40 per cent) considered road accessibility alone was their essential site requirement. These businesses indicated that whenever rail services were required, they could make use of the public sidings of the railway companies. With modern trucking facilities, they feel that transshipment of goods between their warehouses and the public railway spurs is reasonably efficient.

Nearly all respondents from the trucking and storage companies showed that since they provide transportation services themselves, accessibility to good road systems has been an essential site requirement. Again, large trucking firms have also been using railways to handle heavy and bulky goods for long-haulage movements. However, a few small local companies felt that proximity to transportation facilities did not have any significance in their site selections at all.

Both Tables V and VI reveal that the distribution of servicing and retail businesses in general has been less influenced by the transportation network. As shown in Table V, twenty-three firms (44 per cent)

indicated that road services alone were an essential requirement in their site selections. These included three machinery rental firms, three electrical goods companies and a few gas stations. Their general location in the railway vicinity was therefore largely a matter of chance and independent site decisions. A few businesses, however, felt that proximity to related businesses and customers was the major economic benefit in their original choice of sites.

It is believed that the above discussion has made known the general trends of transportation and their industrial site effects since the Second World War. While truck services have gradually become more important to more numbers of businesses than the railways, some types of industrial and associated activities indicated that railways can not be replaced completely. The overall distribution pattern of industries and associated firms is therefore essentially oriented towards efficient road systems and close to the city periphery. Some activities, especially those which require long haulage of relatively heavy goods, are also oriented towards convenient railway facilities. It is expected that this general transportation and locational trend will continue in the near future. An attempt has also been made to investigate the opinions of the industrialists and businessmen regarding this aspect. About 94 per cent of the firms contacted reported that there will not be any change in their present means of transport in the foreseeable future. They therefore further confirm that the present prevailing trends are already well established, and are unlikely to be changed.

RAILWAY COMPANY POLICIES AND LAND USE

There are at present three railway companies in Edmonton: the C.N.R., the C.P.R. and the N.A.R. Since the N.A.R. is owned jointly by the other two, it is not in a competitive position with its parental operators. However, the C.N.R. and the C.P.R. have been existing as two strong rivals throughout the transportation history of Edmonton. They tend to devise their own administrative policies to protect their businesses. Some of these policies may bear a strong influence on the traffic volume they handle. They also behave as a cultural factor affecting the urban land use pattern. In the following discussion, three major aspects of these policies will be reviewed: the policies on leasing company-owned property, the system of car interchange and switching limits, and the approach towards industrial park development. The attitudes of the railway companies to industrial sites will also be a minor theme in the analysis.

Land Leasing Policies

The railway companies in Edmonton are significant real estate owners. Within the city proper, they possess 1,393 acres of land, which amounts to 2.5 per cent of the total area of the city. Consequently, they are one of the prominent agents which exert direct control on land development.

The land owned by the railway companies can be divided into two categories: land occupied by railway facilities (i.e. the right-of-way and marshalling yards); and surplus land not required for railway operations.

As shown in Table VII, 1,086 acres of land (77 per cent of the total railway company-owned area) is occupied by railway operation facilities.

Although real estate is not the primary concern of the railway companies, they had to acquire land for their operations when they first arrived in the city. Some small land grants were made by the City Council as an inducement to development, but most of the required lands were bought by the railway companies themselves. According to the General Orders of the Board of Transport Commissioners, the minimum clearance of a railroad main-line right-of-way is 20 feet 2.5 inches.²¹ Instead of buying up narrow strips of land for these rights-of-way, the companies found it more economical to buy complete parcels of land and later sell the unrequired portions. In some areas, especially close to the marshalling yards, they reserve the surplus land for leasing and revenue. Thus, by owning and leasing these areas, they can control land development and co-ordinate it to their railway business.

TABLE VII

USES OF LAND OWNED BY THE RAILWAY COMPANIES IN EDMONTON, 1967
(In acres)

Companies	Uses	Land Occupied by Railway Facilities		Surplus Land	Total
		Rights-of-Way	Marshalling Yards		
C.N.R.		308	390	50	748
C.P.R.		130	120	248	498
N.A.R.		14	124	9	147
Total		452	634	307	1,393

Source: City of Edmonton, Department of Assessment, Edmonton, 1966.

²¹J. W. Telford, Memorandum Re Interswitching, unpublished paper, Edmonton, 1966, p. 2.

In recent years, the C.P.R. has tended towards a stronger emphasis on the development of its real estate business. In 1964, Marathon Realty Company Limited was formed as a separate agent to manage the land property of the company. They then acquired a large piece of land at the southern fringe of the city for planned industrial park development.

There are two basic ways in which the railway companies treat their surplus properties: they either lease them to businesses, or develop them under their own company policy. The amount of each type of land use is summarised in Table VIII.

TABLE VIII

USES OF RAILWAY OWNED SURPLUS LAND, EDMONTON, 1967
(In acres)

Companies	Uses	Land Leased		Land under Industrial Park Development	Total
		For Industrial and Storage Use	For Non-industrial Use		
C.N.R.		46.6	3.7	0	50.3
C.P.R.		29.0	3.5	215.8	248.3
N.A.R.		8.3	0.3	0	8.6
Total		83.9	7.5	215.8	307.2

Sources: City of Edmonton, Department of Assessment, Edmonton, 1966.

Table VIII indicates that 70.3 per cent (215.8 acres) of the total railway-owned surplus land is controlled by the C.P.R. Company for planned industrial park development. The remaining 30 per cent (91.4 acres) is leased predominantly for industrial and storage uses. This includes sites

for factories and storage space for some wholesaling and warehousing firms. A limited amount (7.5 acres), however, is leased for non-industrial uses. Most of the land in this category is close to the city centre where parking space is in great demand. A large proportion of this surplus land is occupied by car parks and car-display lots. The distribution of the various types of railway property is shown in Figure 12.

There are generally two kinds of leases: long term leases of more than five years, and standard leases of a shorter period, which can be cancelled within thirty days' notice. In the selection of lessees, the railway companies, especially the C.N.R. will investigate the firms' demands for railway traffic.²² Except for the few parking lots at the city centre, the rental decisions depend not only on the potential investment and paying ability of the lessees, but also on the amount of freight traffic to be produced. The C.N.R. officials expect a long term lessee to produce approximately \$100,000 of traffic revenue per year, and a short term lessee to give a minimum revenue of \$1,000 per year. Most of their lessees are therefore well-established industrial or wholesaling firms, making use of a relatively large volume of railway cars. Consequently, this land leasing policy of the railway companies is very significant in urban land development. The railway authorities themselves tend to encourage the growth of industries along their trackages. They also contribute to the development of a lineal industrial land use pattern in the metropolitan area.

²²Much of the information about the land leasing policies of the C.N.R. was obtained from per. comm., R. A. MacDonald, Assistant Manager of Real Estate, C.N.R., Edmonton, July, 1966.

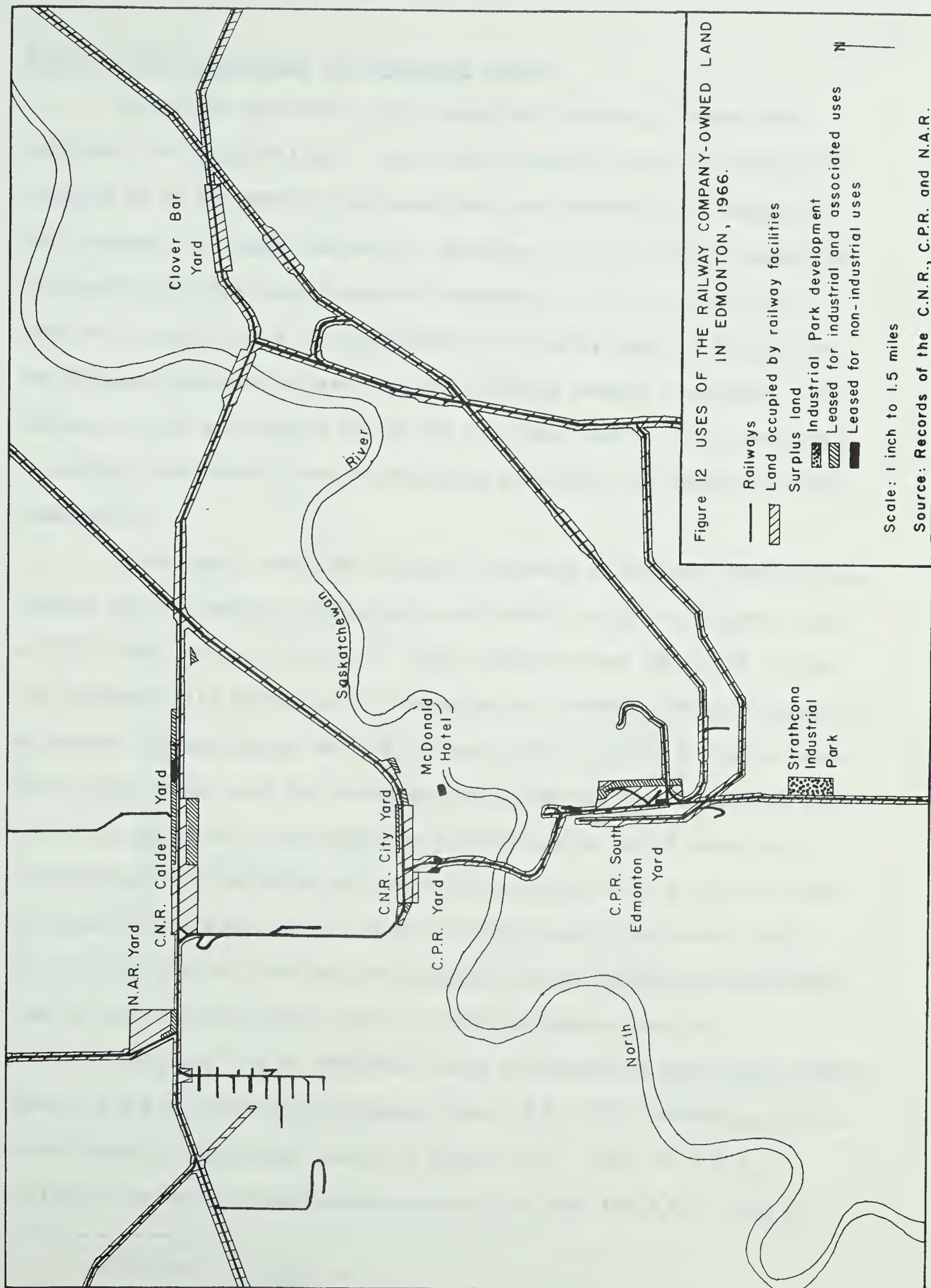


Figure 12 USES OF THE RAILWAY COMPANY-OWNED LAND IN EDMONTON, 1966.

- Railways
- ▨ Land occupied by railway facilities
- ▤ Surplus land
- ▧ Industrial Park development
- ▩ Leased for industrial and associated uses
- Leased for non-industrial uses

Scale: 1 inch to 1.5 miles

Source: Records of the C.N.R., C.P.R. and N.A.R.

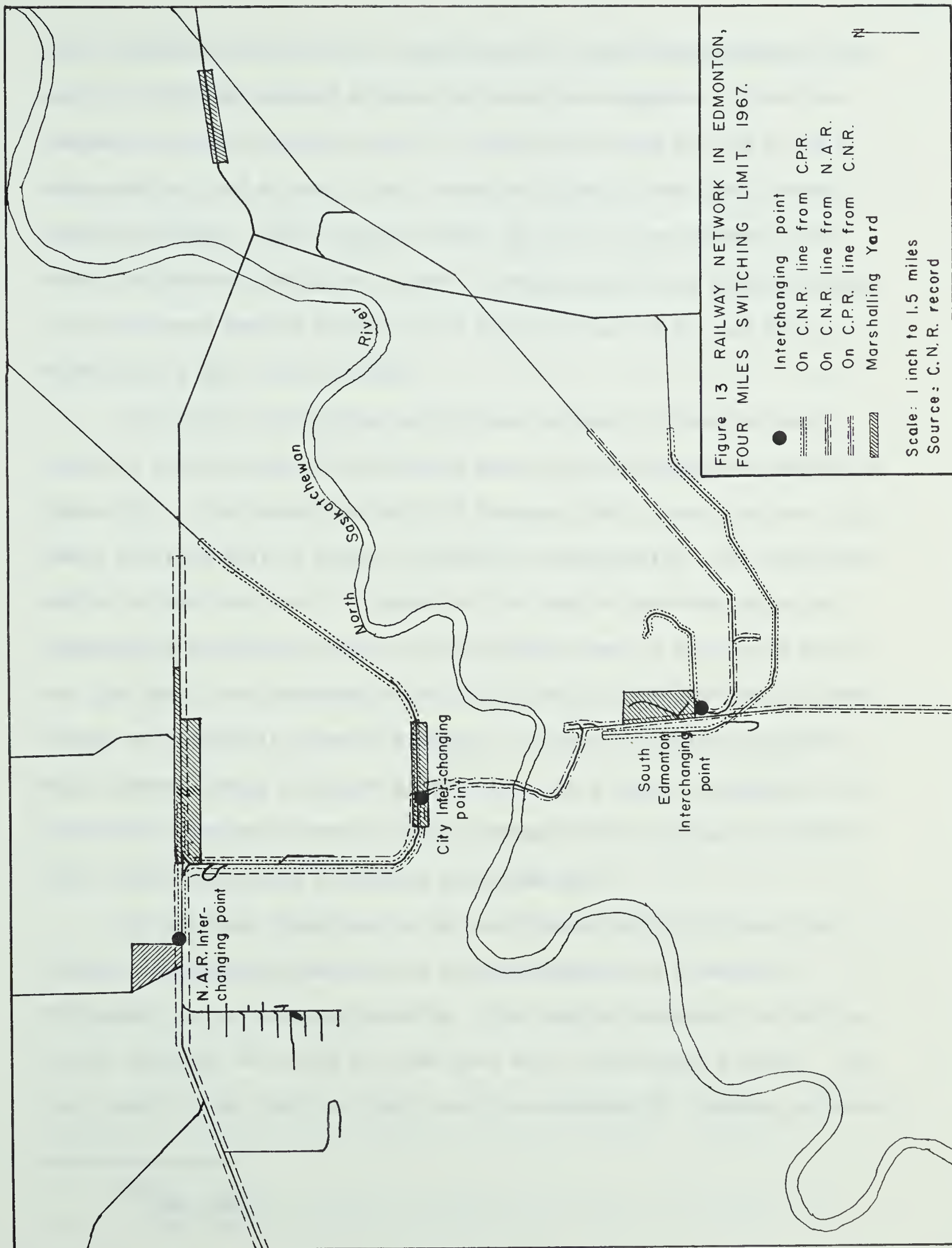
System of Car Interchange and Switching Limits

Before the mid 1910's, most industrial plants in Canada were serviced by a single railway. Very often, however, they required their products to be delivered to customers who were serviced by a competing rail carrier. It became necessary, therefore, for the railway companies to provide physical connections and interchange traffic so that the required delivery could be accomplished. The interchange of freight is the physical movement of cars from one railroad company to another. The purpose of this performance may be for road-haul traffic (i.e. carrying to another destination), or for switching services (i.e. delivery to the consignees).

In the early twentieth century, the Board of Railway Commissioners studied the interchange problem all over Canada, and issued General Order no. 252 dated October 26, 1918.²³ This order set down rates and limits for interswitching movements. It compelled all Canadian railway companies to provide interswitching service for each other. It set a regular road-haul charge of one cent per hundredweight (increased to 1.5 cents in 1950) on traffic which is interswitched to private sidings and 2 cents per hundredweight for switching to team tracks (increased to 3 cents in 1950). The Order also stated that the limit to which these rates should apply was four track miles from the interchanging points. In view of the limited size of most cities at that time, the problem appeared settled.

Within the City of Edmonton, three interchanging points were agreed upon: the N.A.R. Junction interchange, the C.N.R. City interchange and the South Edmonton interchange (refer to Figure 13). Since the C.N.R. is obliged to provide interswitching services for both the N.A.R. from the

²³Telford, op. cit., p. 2.



N.A.R. Junction, and the C.P.R. from the City interchanging point, it is used as a "bridge carrier" between the other two companies. These two companies are able to route cars via each other, using the C.N.R. as a bridge medium, and in such a way, reach the firms in the other line's switching limits. Cars originated from the C.P.R., for instance, can reach the Dominion industrial estate at regular road-haul charge through the interchange traffic between the C.N.R. and the C.P.R., and then between the C.N.R. and the N.A.R.

The three interlocking interchange services in Edmonton thus provide a fairly large interswitching area in the metropolitan region (see Figure 13). It extends from north of Dunvegan Yard to south of the City limit, and from West of Bissell to Swift's Packing Plant. All inter-line traffic within this area is charged at the regular road-haul rate, but interswitching services outside the limit will cost as much as 30 cents per 100 lbs. This "four-miles switching limit" therefore bears a strong control on industrial sites in Edmonton. It sets a rigid zone outside which interswitching costs are prohibitive. As a result, industrial and associated firms which demand railway transport are compelled to select their sites within this four miles switching area.

It has been recognised in the post-Second World War years that this early-established policy is a strong hindrance to industrial development in the metropolitan area. The booming industrial activities can not possibly be forced into the four miles interchange pattern. The City Council feels that the limit should be extended.²⁴ However, although

²⁴Loc. cit.

unofficial negotiation has been undertaken among the railway companies, no substantial conclusion has been reached as yet.

In recent years, more railway-oriented firms also began to realise that sites with accessibility to one single railway are not very desirable from a transportation viewpoint. These industrial firms tend to locate in areas where joint railway services are available. The development of oil and chemical industries in East Edmonton is an example of the adaptation of industrial land use towards such changing transportation demand. Many industrialists regard the provision of joint industrial trackages as the best solution to the problem.²⁵ They feel that all new industrial parks, especially those authorised by the Municipal or Provincial government should be made joint switching areas. Actually, this idea has been practised in Calgary in their new Foothills Industrial Park. The City of Edmonton is hoping that Marathon's Strathcona Industrial Park will be developed under the same policy. Nevertheless, the area is at present served only by the C.P.R. The C.N.R. is not yet prepared to extend its trackages into the Park, mainly because the area is within the four-miles switching limits from the South Edmonton Interchanging point. Under such a circumstance, the C.P.R. is compelled to provide interswitching services for the C.N.R. at regular road-haul charge. In the opinion of the City Planning authority, further co-operation between the two railway companies is very desirable in forging industrial development in Edmonton.²⁶

²⁵Per. comm. Meryn N. Kowton, Deputy Industrial Co-Ordinator, Department of Industrial Development, City of Edmonton, Edmonton, September, 1966.

²⁶Per. comm. P. Ellwood, Assistant Director of Planning, City Planning Department, Edmonton, October, 1966.

Approach to Industrial Park Development

Charles Sargent in "Land for Industry"²⁷ defined an industrial park as:

"... a special or exclusive type of industrial subdivision developed according to a comprehensive plan to provide serviced sites for a community of compatible industries. The industrial park, under continuing management, provides for adequate control of the tract and buildings through restrictive covenants, and/or adequate zoning with a view to maintaining aesthetic value throughout the development."

Such a comprehensive approach under one co-ordinated management has many advantages over the old piecemeal industrial development. It provides long-range yet flexible plans, meeting most site requirements of the industries. The pattern of industrial land use in an urban community can also be better organised. Many American cities and private real estate companies have adopted this method in planning and developing industrial areas.²⁸

The C.N.R. and the C.P.R. in Edmonton seem to hold different attitudes towards industrial park development. The former company considers transportation services as their primary business and major source of revenue.²⁹ Instead of getting involved in large real-estate affairs, it holds to the policy of encouraging the growth of industrial parks under private developers. The company itself does not purchase any land, or act

²⁷Charles Sargent, "Land for Industries," Urban Land, Vol. 23, No. 2, February, 1964, p. 3.

²⁸Read, for example, William Bredo, Industrial Estates -- Tool for Industrialization, International Industrial Development Centre, Stanford Research Centre, Menlo Park, California, 1960.

²⁹The discussion on the general attitudes of the C.N.R. towards industrial park development is based on per. comm., R. A. MacDonald, Assistant Manager of Real Estate, C.N.R., Edmonton, July, 1966.

as an organizing agent. However, if the developer is in need of rail but short of capital, the company may construct the required private sidings, and even the industrial lead tracks for them. The invested revenue is later obtained through charging a higher rate on the railway traffic. The Dominion industrial estate in north-west Edmonton, for instance, was developed under such a policy.

The C.P.R. on the other hand is very active in industrial park development. It is actually the pioneer in practising the idea in the Edmonton metropolitan area. In early 1966, Marathon Realty Company bought 215.8 acres of land at the southern fringe of Edmonton for the development of the Strathcona Industrial Park (see Figure 12). The site is located on the C.P.R. Calgary mainline, along Highway 2 and on the proposed route of 99th Street expressway to the City centre. The Realty Company then divided the development project into several phases.³⁰ The first phase, which is now under development, covers the north-western quarter of the park. By July 1966, this area was serviced with paved roads, water, sewers, electrical power and other industrial site facilities. The C.P.R. is expected to serve the industries by mid 1967. In October 1966, a manufacturing plant -- Gulfco Company Limited was first established in the park, occupying 2,200 square feet. Two warehousing firms are also expected to locate in the area in mid 1967. Accordingly, the policy of the C.P.R. on industrial park development has a very pronounced effect on

³⁰Information regarding the detailed development plan of the Strathcona Industrial Park was obtained from per. comm., F. Jaremchuk, Industrial Development Officer, Marathon Realty Company, Edmonton, June, 1966.

industrial land use of the metropolitan area. It encourages the growth of industries and bears direct control on their specific sites.

CHAPTER IV

EVOLUTION OF THE RAILWAY NETWORK AND LAND USE SINCE THE SECOND WORLD WAR (1939)

INTRODUCTION

Before the outbreak of the Second World War in 1939, the fundamental railway framework in Edmonton had already been well established. With the post-war economic and population expansion of the city, much open country through which the railways ran became thickly built up areas. These trackages then appeared to split up the community, forming barriers to certain types of land uses. Blighted conditions were also created by unplanned industrial "pockets" spotted throughout the city. In the early 1950's however, the city planners began to feel that some sort of remedy must be devised to correct the past mistakes.¹ As part of this general concern, it was decided that proper direction should be given to the locations of new industrial spur lines. Consequently, there has been a general rationalization of the development of railway trackages in the metropolitan area since 1952. In recent years, the establishment of industrial areas and spur lines have been planned together, so that the two can be co-ordinated with each other.

It is the purpose of this chapter to trace the evolution of the railway pattern in Edmonton since 1939. Its effects on land use and its control on industrial sites will be specifically emphasized. A major part of this chapter is therefore an assessment of the present industrial land

¹Read, for example, Edmonton Journal, August 17, 1950.

use in relation to other types of land uses along the railway trackages.

PERIOD PRIOR TO 1952

THE AMERICAN RAILHEAD PROBLEM

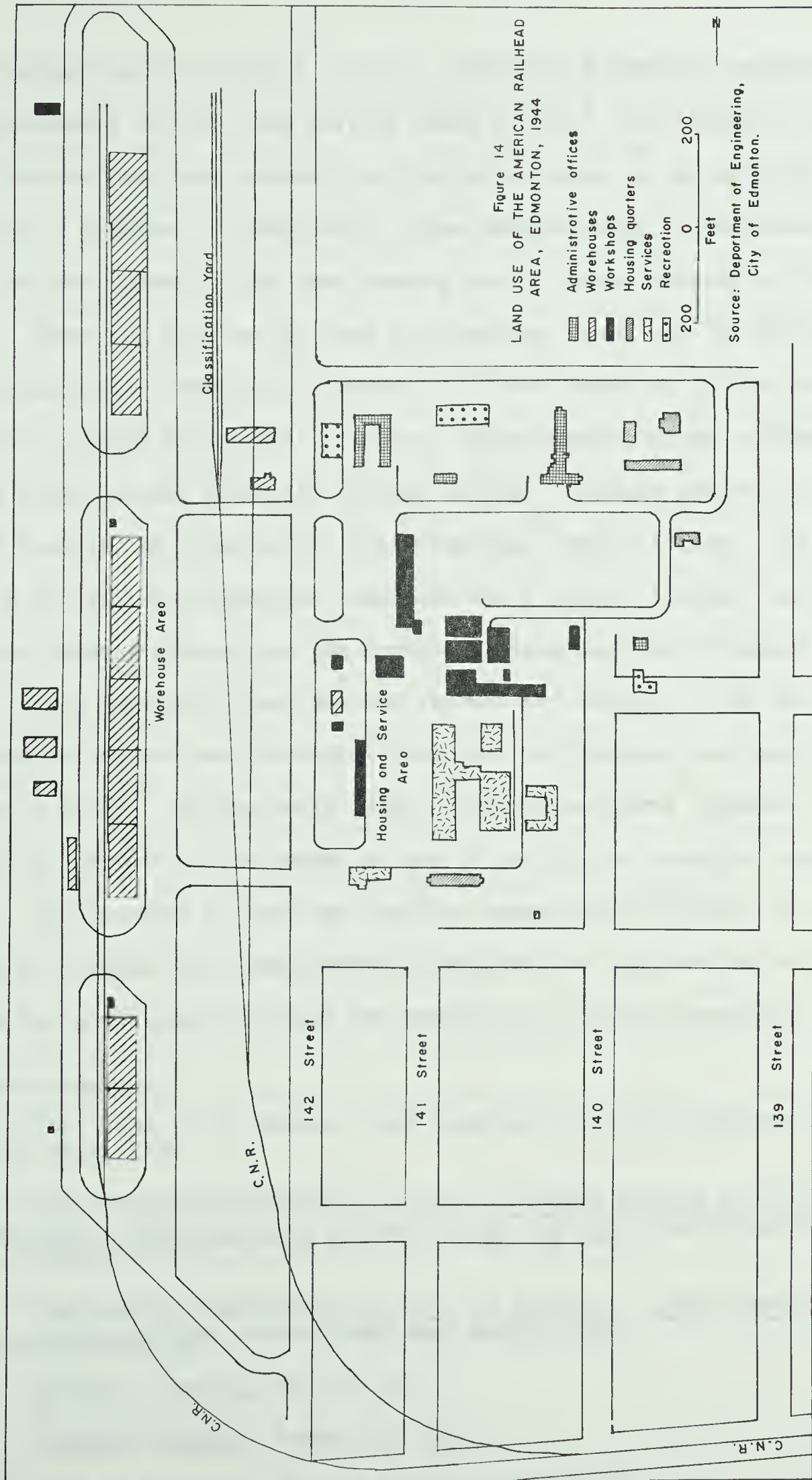
During the Second World War period, Edmonton was chosen as a military base for the armed forces of the United States. It also became the supply post for the construction of the Alaska Highway. In 1944, the City Council permitted the Americans to establish a military "Railhead" at the western edge of the community between 139th and 149th Streets; and between 107th and 111th Avenues.² This area was originally zoned as "Agricultural land use" in 1933 under Bylaw No. 26. However, due to "war emergency conditions",³ Bylaw No. 1058 was passed in 1944 to permit temporary use of land and buildings for military purposes.

Part of the abandoned Edmonton, Yukon and Pacific Railway towards Stony Plain was then relaid from the 121st Street Junction. The trackage ran along 107th Avenue as far west as 142nd Street, at which point it turned north to 111th Avenue (see Figure 14). A small classification yard was also established in the area. To the east of the yard was a housing and service area, where administrative buildings, housing quarters, machine repair shops and a laundry were erected. The grounds immediately west of the yard were occupied by warehouses.

After the American military personnel had withdrawn at the end of the war, the Railhead area and buildings were taken over by the War

²City of Edmonton, Bylaw No. 1058, Amending Bylaw No. 26, August 14, 1944.

³Loc. cit.



Assets Corporation of Canada.⁴ In 1945, the City of Edmonton acquired all the improvements on city land west of 142nd Street.⁵ The tracks of the classification yard were removed, but the major leads to the military warehouses still remained. Subsequently, some manufacturing and warehousing activities were drawn to the area, making use of these remnants of the war period. Since the City was in need of industrial land, and the Railhead was at the edge of the community, Bylaw No. 1127 was passed in 1947 to re-zone the area to "Heavy Industrial" land use. Major manufacturing and warehousing firms located along the railway in 1947 included Imperial Oil Company Limited, Halliburton Oil Well Cementing Company Limited, the Tantalum Refining and Mining Corporation, Woodland Dairy Company Limited, Northwest Equipment Company Limited and the Provincial Department of Transport.⁶

While industrial land use was allowed to continue in the Railhead area, population and new industrial districts in Edmonton were "swelling at an amazing rate."⁷ By the early 1950's, the Railhead area appeared as an "industrial pocket" in the centre of one of the City's potential residential zones.⁸ This problem of land use conflict became quite critical in late 1951, when a number of firms located by the Railhead applied for building permits for additional workshops and warehouses on their properties.⁹

⁴Per. comm. J. R. Warner, Land Department, City of Edmonton, Edmonton, June, 1966.

⁵City Planning Department, Edmonton, Alberta Laundry and Dry Cleaners Plant, Narrative with Relevant Dates and Facts, unpublished record, January 1958, p. 1.

⁶Engineering Department, The City of Edmonton, 142nd Street Sub-division, Railhead Area, unpublished map, April, 1947.

⁷Edmonton Journal, May 26, 1952.

⁸Edmonton Journal, August 17, 1950.

⁹City of Edmonton, Council Minutes, October 19, 1951.

Among the firms planning for expansion in the area were Halliburton Oil Well Cementing Company Limited, and Stein Structures Limited. The former company stated that when they first acquired their property in 1947, they were urged by the City to establish at the Railhead. They felt that they should stay and expand on their current site since they had already invested about \$85,000 in it.¹⁰

On the other hand, the City Council was hesitant about issuing the desired permits.¹¹ It was realized that the Railhead "threatened to blight a fine, new residential area, and curb development of another being planned -- Westmount Park District."¹² In opposition to any extension of the industrial Railhead, a petition was signed by 203 residents of the nearby districts.¹³ These citizens pleaded that the industrial pocket be eliminated; and that the area would be a greater asset to the city if it were made into residential property.¹⁴ The lack of control on railway spurs and industrial sites immediately after the war had therefore created admixed land use problems to be rectified by the city planners.

OTHER PIECEMEAL INDUSTRIAL SITE DEVELOPMENT

Besides the problem of the American Railhead, the City was confronted by other difficulties which were created by piecemeal industrial

¹⁰Ibid., January 14, 1952.

¹¹See, for example, Ibid., October 19, 1951.

¹²Ibid., August 18, 1950.

¹³City of Edmonton, op. cit., February 11, 1952.

¹⁴Edmonton Journal, August 17, 1950.

land use development. There was a great demand for industrial and warehousing land not only because new plants were being introduced into the city, but also because existing firms were at a stage of rapid expansion. Nevertheless, as recalled by the city planners in 1950, industrial premises were located "wherever large enough blocks of land happened to be available and without proper consideration of all pertinent factors."¹⁵ Railway sidings, likewise, were projected bit by bit into these areas, "resulting in Edmonton being badly cut up."¹⁶

Starting in 1949, the city centre was more compactly filled up with centrally oriented warehousing and wholesaling firms. Among the principal ones which were built then, two handled electrical supplies, while one large warehouse distributed general hardware.¹⁷ In 1948, the "Old Penitentiary Property" between 92nd and 84th Streets along the C.N.R. mainline was converted to industrial use, so that by 1951, the site was completely occupied by twelve companies. A large volume of railway traffic in the area was produced by the City Waterworks Yard and Sun Fruit Company Limited.

With the Leduc oil discovery in 1947, many firms engaged in servicing the oil industry were established in South Edmonton. The oilfield equipment manufacturing plants of Barber Machinery Company Limited and National Tank Limited were examples of firms located adjacent to the C.P.R. marshalling yard. By 1951, however, only ten of these new premises were

¹⁵Edmonton Journal, August 17, 1950.

¹⁶Loc. cit.

¹⁷All information regarding the piecemeal industrial site development in Edmonton before 1952 are gathered from Report on Expansion of Railway Facilities and Re-arrangement of Trackage in Conjunction with a Proposed Agreement with the City of Edmonton, C.N.R. unpublished record, Winnipeg, 1951.

serviced directly by private railway sidings (both C.N.R. and C.P.R. included). In order to make unloading facilities available to all new industries, the C.N.R. constructed four team tracks and a loading platform immediately west of the C.P.R. marshalling ground. Late in 1951, the City of Edmonton acquired a piece of ground lying north of 63rd Avenue, west of 99th Street and east of the C.N.R.'s former Edmonton, Yukon and Pacific line. This 40-acre property was then designated for industrial use. Canadian Equipment Sales and Service Company Limited and Franklin Pipe and Supply Limited were significant firms introduced into the district.

Late in 1950, the North Edmonton meat packing complex was extended westward towards the Fort Trail. A loop-track was constructed along Mount Lawn Road for industrial services. Large manufacturing operations such as Edmonton Concrete Block Company Limited were located on the C.N.R. private sidings, while smaller warehouses, including the United Grain Growers Company, were also built in the area.

Concurrently, industrial development in the vicinity of the Calder Yard began to extend eastward as far as 90th Street. By 1951, the C.N.R. property west of 97th Street was densely occupied by twenty firms. The City-owned land east of 97th Street to 90th Street was also under development. A number of metal fabricating plants and lumber yards were sited along railway sidings.

As the wholesaling and warehousing district at the city centre was being continuously filled up, some establishments that did not require central locations began to seek new sites to avoid blighted conditions and traffic congestion. Spacious ground outside the central area was therefore greatly in demand for industrial relocation and expansion. In 1950, City Council rezoned the Hudson's Bay Golf Course Reserve along 121st Street for

industrial use; and the site is the present Kingsway industrial estate. Under agreement with the City, the C.N.R. constructed industrial leads and private sidings to service the area. Property, especially north of 111th Avenue, was very promptly sold, most of it within fifteen months. By 1951, more than fifteen warehouses and wholesale stores were erected, and the expansion was so rapid that there was a general shortage of building material supplies. The major establishments in the area were food wholesaling firms including Kraft Foods Company Limited, Western Grocers Limited and Brown Royal Fruits Limited.

From 1950, large scale industrial development began to take place at the eastern periphery of Edmonton. British American Oil Company Limited and Texaco Canada Limited were the first to enter the area in 1950. They were followed by Canadian Chemical Limited and Building Products Limited in early 1951. More than 32,000 feet of industrial sidings were constructed by the C.P.R. and C.N.R. to service these four industrial plants.¹⁸ Several other large industrial firms were negotiating for sites in the vicinity as well.

While all these scattered industrial pockets were expanding at various places in the city, the town planners began to realize that "Edmonton has been left in a costly, complex industrial tangle because of a haphazard historical growth of industry clinging to railway lines."¹⁹ They pleaded that "proper placement of industry is a matter of immediate concern if Edmonton's outstanding development is not to be crippled."²⁰ Finally in

¹⁸Engineering Department, unpublished record, C.N.R. and C.P.R., Edmonton.

¹⁹Edmonton Journal, August 18, 1950.

²⁰Ibid., August 17, 1950.

1952, the City Council started to take action to rectify land use mistakes, and to prevent others occurring through the unwise siting of industries.

PERIOD FROM 1952 TO THE PRESENT

THE PLANNED EXPANSION SCHEME OF EDMONTON

In August 1952, a comprehensive development plan for the whole community was agreed between the City Council of Edmonton and the C.N.R. Company.²¹ This so-called "Planned Expansion Scheme" involved street closings, subway constructions, land exchanges, and trackage eliminations and alterations, all considered to be "to the mutual advantage of the two parties."²² The total cost to the City was approximately \$2,135,000 and to the railway \$2,841,620.²³ In the deed of land exchanges, the C.N.R. transferred 82.86 acres to the City, while the City, on its part, transferred 60.71 acres to the railway company.²⁴ Since this plan entailed large construction projects, it was implemented in several phases. Some major achievements and their land use effects are discussed in the following passages. They are also illustrated in Figure 15.

1. Trackage Re-arrangement and Eliminations

The first correction was to eliminate and re-arrange the ill-functioning trackage close to the city centre. The "wye-track" for turning passenger equipment at 124th Street and north of Stony Plain Road, for instance, had been a source of continual complaints from citizens.

²¹For the details of the agreement, read Memorandum of Agreement made and Entered into the 8th day of August, A.D. 1952, between the City of Edmonton and the C.N.R., City of Edmonton. Much of the facts mentioned in the following discussion on the Planned Expansion Scheme are derived from this memorandum.

²²Ibid., p. 1.

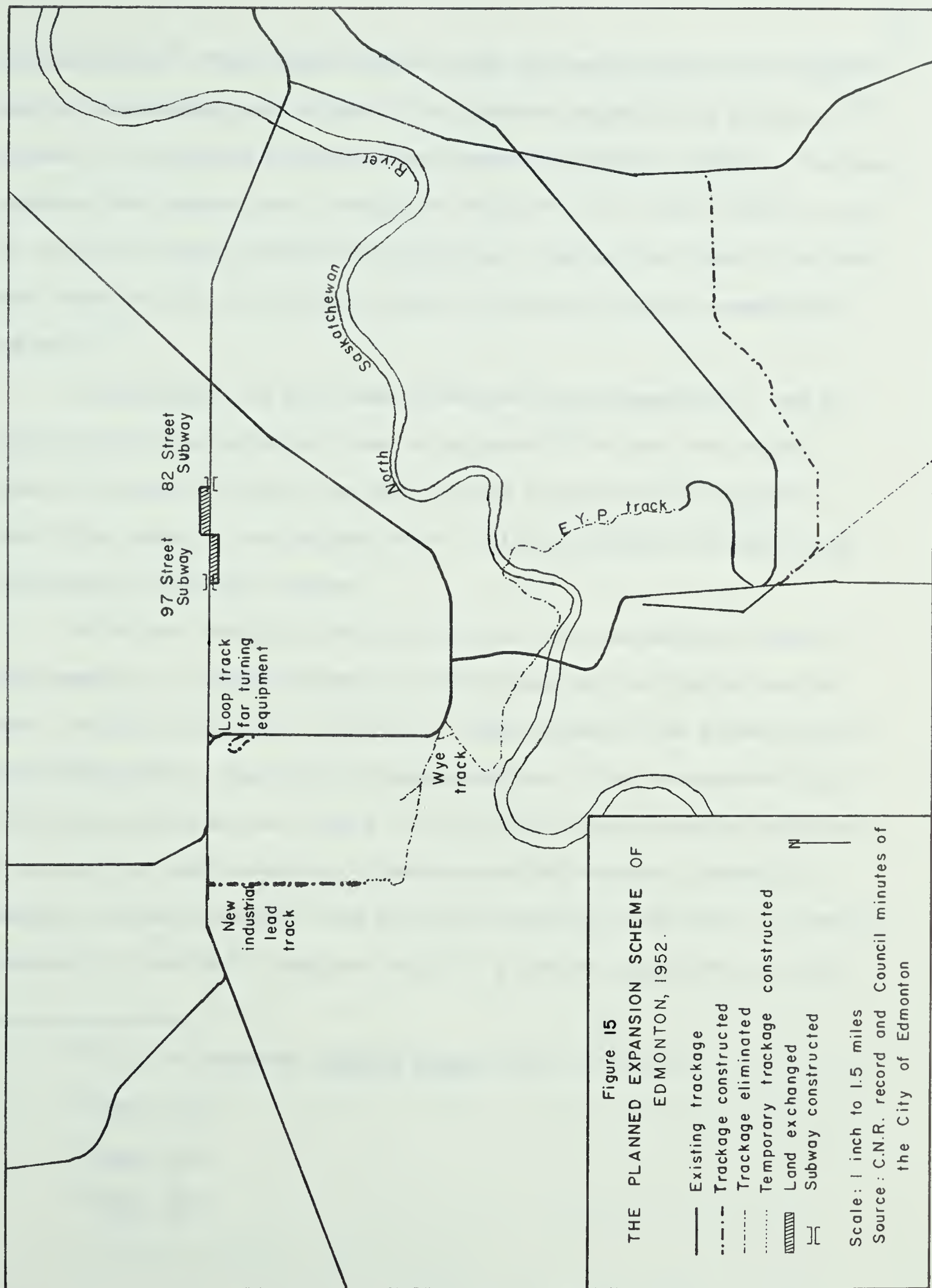
²³Edmonton Journal, April 22, 1952.

²⁴Loc. cit.

It had been causing traffic stoppages on several adjoining streets which it crossed. The C.N.R. therefore proposed to remove all the rails and fastenings of this wye track, and transfer to the City all its right, title and interest in the land occupied by the wye. The car turning facilities were then operated on the loop track located in the vicinity of 122nd Street and 124th Avenue. The right-of-way for this loop was provided by the City, and the trackage was constructed in 1952.

Considerable attention was also given to the Edmonton, Yukon and Pacific trackage through the river valley and over the Low Level Bridge. Since most industries along Mill Creek and north of the Gainer's Packing Company plant had gone out of existence after the great flood in 1915, this trackage had lost its former function. Its importance for industrial services was further reduced by the competition of truck and pipeline transport. The City Power Plant, for example, had changed to natural gas instead of coal for fuel. Its original site orientation towards the railway thus became insignificant. Accordingly, the City Council requested the abandonment of this 5.8 mile-long track from the 121st Street Junction to Gainer's Packing Plant. In return, a new access to the South Edmonton industrial district was provided by the City. It consisted of a connection between the Camrose Subdivision and the old Strathcona Subdivision, and was constructed in 1952 (see Figure 15).

Another important achievement included in the Planned Expansion Scheme was the clearance of the industrial pocket at the Railhead area. After evaluating the site factors of industrial land use, the Interim Development Appeal Board recommended to the City Council in April 1952 that re-zoning of the Railhead from "Heavy Industrial" to "One-family Dwelling"



was desirable.²⁵ Their reason was to allow "the said lands to be integrated into the surrounding area as part of a proposed neighbourhood unit plan."²⁶ In view of the current industrial development in the area, however, the Board suggested that before such a change was made, the City should negotiate with the owners for their removal and relocation. Most of the firms in the area also indicated that they did not object to moving if proper compensation was made.²⁷

Accordingly, the City Council adopted the recommendation, and set aside \$150,000 for assisting firms to relocate.²⁸ To meet the urgent demand for industrial land, the City decided to open up the extensive tract lying north of the Railhead area. This is the present Dominion and Huff-Bremner industrial estates.

With this changing land use pattern at the northwestern corner of the community, it became necessary to re-arrange part of the railway network. In 1952, the C.N.R. yielded its right-of-way on the former Lac St. Anne Subdivision to the City for residential use. The trackage and right-of-way along 107th Avenue leading to the Railhead area were also abandoned. To service the newly established Dominion and Huff-Bremner industrial estates, the City provided a new lead track extending from the C.N.R. main-line west of the N.A.R. Junction in 1953. A temporary spur was also laid

²⁵City of Edmonton, Council Minute, April 28, 1952.

²⁶Loc. cit.

²⁷Loc. cit.

²⁸Loc. cit.

from the southern end of this industrial lead across 111th Avenue to reach the few industries at the Railhead area (see Figure 15). The C.N.R. promised to have this temporary connection removed when relocation of all industries from the area was completed.

The clearance of industrial and associated firms from the Railhead began late in 1952, with Machinery Construction and Repair Company Limited being the first to move.²⁹ In 1953, relocation of the storage facilities of three large petroleum companies and two construction firms was begun. In 1954 and 1955, five more manufacturing and warehousing firms were moved. This relocation trend continued during the late 1950's and early 1960's, and was accompanied by the elimination of railway sidings. In most cases, the City purchased the vacated land and provided alternative sites for the relocation of the firms. Financial compensation was also granted to cover the cost of transference. The relocation of Halliburton Oil Well Cementing Company, for instance, cost the City \$35,000.³⁰ In 1961, Bylaw No. 2135 was passed to re-classify most of the area into a one-family residential district.

A few establishments, however, were reluctant to move. The warehouses of the mail order department of the Army and Navy Stores Company, for example, remained in the area until 1963, when the site was purchased for the Archbishop McDonald High School. The last section of railways in this pocket was abandoned in 1965;³¹ and part of the Railhead was re-zoned into a public and service district in 1966. To-day, prominent features in

²⁹City of Edmonton, Land Department, unpublished record, 1952.

³⁰Edmonton Journal, May 13, 1952.

³¹Per. comm. C. Quilley, Industrial Development Officer, C.N.R., Edmonton, July, 1966.

the area are the office of the Alberta Teachers' Association, the Archbishop McDonald High School and the Girl Guides of Canada building.

2. Land Exchanges.

In view of the increased traffic volume in the metropolitan area, the C.N.R. considered it necessary to expand their marshalling facilities.³² Consequently, the company requested the City to participate in a land exchange in the Planned Expansion Scheme. Approximately 22 acres of land north of the mainline between 82nd and 90th Streets were transferred to the railway company for yard expansion. The City, in return, received 21 acres of land on the southern side of the same track between 90th and 97th Streets for industrial use (see Figure 15). The site was later developed as the Delton industrial estate.

3. Street Closings and Subway Constructions.

Due to the addition of marshalling tracks and industrial development along the C.N.R. mainline on 126th Avenue, the City consented to the closure of all street and lane crossings between 83rd and 90th Streets. Two new subways, on 97th and 82nd Streets, respectively, were constructed to provide north-south traffic routes. The cost of these subways were borne equally by the City and the railway company, each contributing \$475,000.³³ The former was completed in 1958, and the latter in 1966. The growth of railway facilities and industries had therefore affected the traffic circulation and transportation land use to a considerable extent.

³²See Chapter IV.

³³Edmonton Journal, April 22, 1952.

ANALYSIS OF THE PRESENT RAILWAY NETWORK AND LAND USE DEVELOPMENT

An attempt is made in this section to examine the present railway network and land use development in Edmonton. Although the primary objective is to analyse industrial and associated land uses in relation to other types of land uses along the railway trackages, a brief account will also be given of the overall railway pattern and land use structure in the entire urban area.

1. The Entire Urban Area

Within the city proper, there is at present a total of 37.29 miles of railway tracks. Their distribution among the railway companies is as follows: the C.N.R. operates 25.40 miles, the C.P.R., 10.70 miles, and the N.A.R., 1.19 miles. The total includes mainline tracks,³⁴ yard tracks,³⁵ passing tracks,³⁶ public sidings or team tracks,³⁷ and private

³⁴Mainline tracks are trackages of the railway mainlines, running in and out of the city. Such examples are provided by the Calder line (the original tracks of the Grand Trunk Pacific Railroad), and the City line (the former tracks of the Canadian Northern Railway) of the C.N.R.

³⁵Yard tracks are those located in the railway marshalling yards for railway operation purposes. They include those used for car classification, storage, cleaning, repairing and refueling, etc.

³⁶Passing tracks are used for the purpose of by-passing the mainline tracks.

³⁷Public sidings or team tracks are public railway facilities for industrial, warehousing and associated services. The consignees are required to load and unload their goods at specific locations at which public facilities are operated by the railway companies. Thus, no direct service is offered.

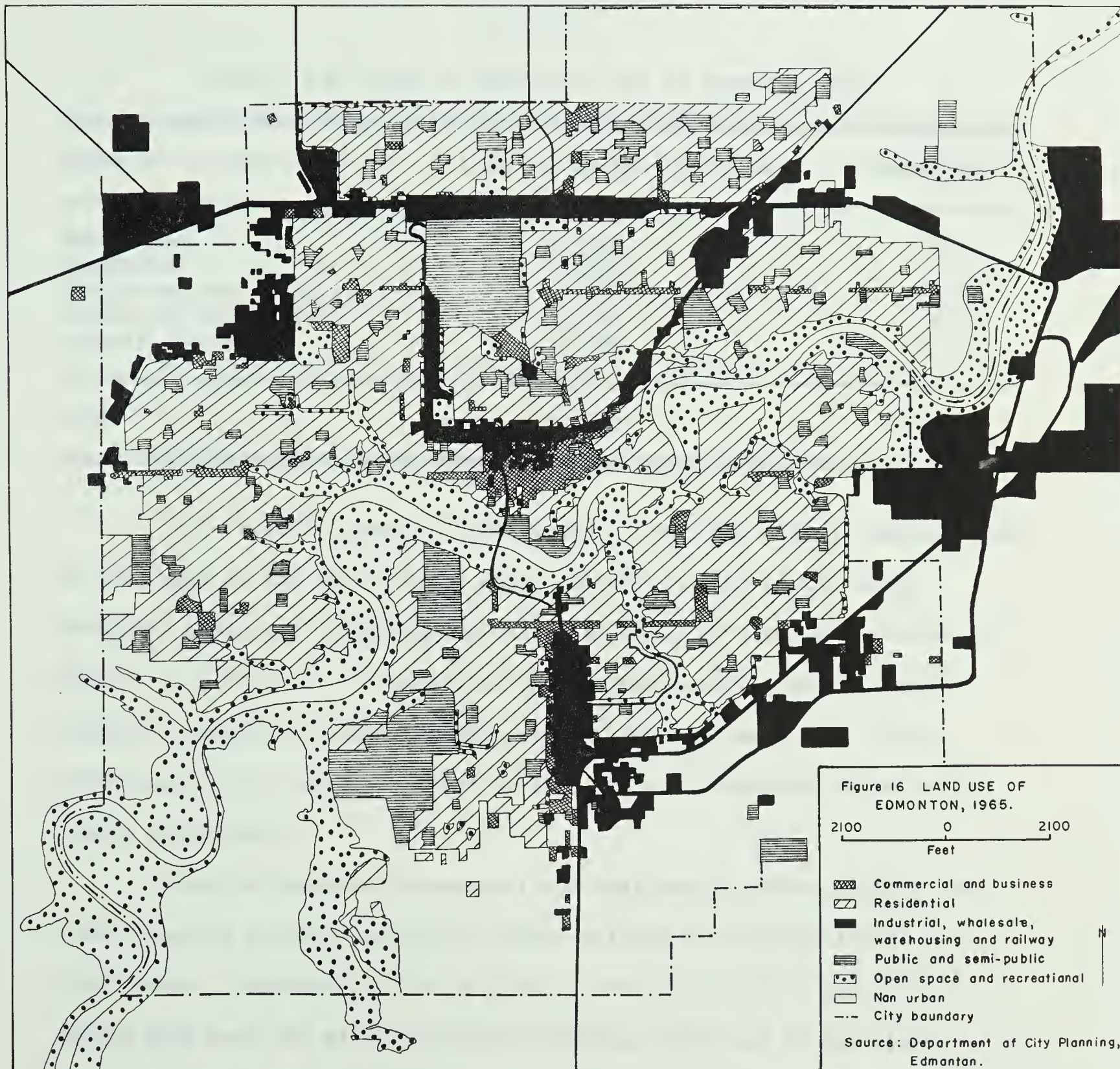
sidings.³⁸ It is the last two categories which are most significant for industrial and warehouse land uses.

Since team tracks are mainly for the service of firms which do not install private sidings, they are found at places which are easily accessible for freight customers. They are, therefore, more or less centrally situated in nearly every industrial and warehousing district in the metropolitan area. Besides the public facilities at its marshalling yards, the C.N.R. operates other team tracks at the Huff-Bremner industrial estate, the former Grand Trunk Pacific freight shed, west of the Swift Packing plant and west of the Calder Yard (see Figure 16). The post-war industrial growth at these specific areas has been a strong inducement for additional tracks. The length of private sidings, likewise, has experienced a growth of 14.18 per cent between 1954 and 1964. In 1964, there were 239,051 feet of private trackages operated by the C.N.R. in Edmonton, compared to 194,667 feet in 1954.³⁹ Accordingly, they are quite densely distributed in the industrial and warehousing areas.

The generalized land use organization of Edmonton is shown in Figure 16. It is based on the map of "Edmonton -- City Land Use, 1965" compiled by the Planning Department of the City of Edmonton. The land use classification of the original document has been modified somewhat. The absolute and relative amounts of land occupied by various uses in 1966

³⁸Private sidings are railway spurs used by particular businesses which pay for the installment of the lines. These sidings are usually extended from industrial lead tracks or railway mainlines to the site of the industrial firm, so that direct railway services are warranted.

³⁹All statistics regarding the length and location of private sidings operated by the C.N.R. in 1954 and 1964 are quoted from C.N.R., Edmonton Terminal Study, General Report, unpublished record, Edmonton, 1965, p. 16.



have also been calculated by the Research Section of the Planning Department.⁴⁰ These statistics are presented in Table IX.

TABLE IX
AMOUNT AND TYPES OF URBAN LAND USE IN EDMONTON, 1966

Types of Land Use	Absolute Amount (in acres)	Percentage
Residential	17,640	32.2
Commercial	2,794	5.1
Public and Semi-public	12,710	23.2
Industrial and Railway	4,931	9.0
Streets and Lanes	16,709	30.5
Total	54,784	100.0

It is readily apparent from Figure 16 that the present distribution of land uses in the city follows quite closely to that of the early twentieth century. Comparing the cities of 1912, 1939 and 1965 (refer to Figures 3, 5 and 16), the locations of the fundamental elements appear basically unchanged, notwithstanding their increased magnitude. The influences of the railway network on land use and industrial sites still remain significant.

To-day's prominent commercial and business districts display the same elongated pattern, especially those aligned with Jasper Avenue and 82nd Avenue. Undoubtedly, the original sites of the C.N.R. and C.P.R. depots have been the major features confirming the sites of the city centre and the commercial area south of the river. Although some retail

⁴⁰ Department of City Planning, City of Edmonton, unpublished document, 1966.

uses have infiltrated to the north of the railway tracks, the C.N.R. City Yard can be considered as an effective northern boundary of the central business district. As a general trend, there has been a westward extension of the area to avoid blighted conditions, and the former commercial prosperity and importance of 97th and 96th Streets has been drastically reduced. Nevertheless, the C.P.R. line along 110th Street occurs as a western limit for any extensive retail and business growth. Other significant commercial land uses are concentrated along the arterial routes of 118th Avenue, 124th Avenue and the western section of Stony Plain Road. In addition, the modern approach to planned regional shopping centres has also been adopted in recent years.

Residential use is by far the most space consuming land use category in Edmonton (32.2 per cent). It exists as a concentric zone around the central business district. The majority of the residential areas are devoted to single family residences, most of which have been constructed since the Second World War. Such recent subdivisions have incorporated new neighbourhood designs with crescentic street patterns.

The land use enveloping the central business district, and extending from 91st Street to 116th Street is classified as medium-density residences. Being the closest to the former city centre, and to the original railway freight shed and related facilities, it comprises the oldest dwelling units in Edmonton. Physical and functional obsolescence prevail in the entire area, and many residences have been converted to multi-family use. Encroachment of incompatible land uses, such as retailing and industry, has also accelerated urban blight. The Planning Department of the City of Edmonton is therefore undertaking an urban renewal

study of the Boyle Street district at present.⁴¹ Their major concern is to eliminate urban deterioration and enforce redevelopment in the area.

High density residential development mainly takes the form of high-rise apartment buildings. Although they are generally scattered along the major thoroughfares, a marked concentration is found to the south of the central business district. This area, bounded by 103rd and 107th Streets, has been under rapid land use changes, as an increasing number of older residences are being replaced by high-density apartment buildings. These new residential developments have chosen this prestige site mainly due to the amenity of the river valley and the proximity to the city centre.

The disposition of industrial and warehouse land uses shows a lineal pattern associated with the railway. However, the increasing popularity of road haulage has become another significant site factor. The development of industrial estates in north-west Edmonton is a typical indicator of the changing transportation demand. Since the early 1950's, there has been a high degree of planning control on industrial land uses.⁴² To-day, no extensive area of admixed incompatible land uses exists in general, except in the early-established city centre and the district enveloping the south side C.P.R. station.

Besides the major industrial and warehouse nuclei in the railway vicinity, a few other premises are scattered mainly along the major thoroughfares. Most of them require only truck services as their essential transportation means to the surrounding region of Edmonton. The manufacturing

⁴¹Read, for example, Department of Planning, City of Edmonton, Boyle Street Urban Renewal Study, Edmonton, March, 1966.

⁴²See the earlier section of this chapter, "The Planned Expansion Scheme of Edmonton."

plant of Coca Cola Company Limited, for instance, is located at the junction of Kingsway and 111th Avenue. Dispersed bakeries servicing the local market are also found in the regional and neighbourhood shopping centres. Detailed characteristics of each of the industrial and warehousing areas in the railway vicinity will be further analysed in the latter part of this chapter.

Ample open space for recreation use is provided by the river valley which is subject to flood hazard. The golf course and parks along the river bank have contributed to the aesthetic appeal of the city.

A limited amount of vacant urban land is found on the fringe of the central business district, where some old buildings have been cleared for redevelopment. Other minor concentrations occur in the recently developed industrial areas. Some tracts in the Dominion industrial estate for example are vacant, awaiting industrial occupancy.

2. Areas in the Vicinity of the Railway

In order to analyse more specifically the land use effects of the railway network in Edmonton, an assessment of the types of land uses in the vicinity of the railway trackage seems desirable. Since the distribution of industries and warehouses is most directly associated with rail services, these two land use elements have been subdivided and mapped in detail. The adopted classification is:

Industry:

Food and beverages

Textiles and Clothing

Wood Products (including furniture)

Chemical, Plastic and Allied Products (including oil refineries)

Printing, Publishing and Paper Products

Metal Products

Machinery and Transportation on Equipment Assemblage

Construction

Non-metallic Mineral Products (including stone work
and cement)

Oil field Services

Miscellaneous

Warehouse and Wholesale:

General Wholesale and Storage

Trucking Terminals and Transportation Companies

The areas adjacent to the railway tracks are divided into several districts according to their areal disposition and land use association. Their distribution in the metropolitan area is shown in Figure 17. The land use types, characteristics and trends in relation to railway trackage will be discussed for each of these districts in turn. Wherever pertinent, the impact of the railway on industrial sites and related land uses will be emphasised.

A. The City Centre Area.

As illustrated in Figure 18, the city centre area is held to embrace part of the central business district, its enveloping area, and the elongated belt along the C.N.R. mainline to the south-west of the Exhibition Grounds. Because of its proximity to the early-established railway yards and freight sheds, this is the oldest industrial-warehouse district in the city. Based on general land use characteristics, the area can be subdivided into two zones: the central business district envelope, and the industrial belt between 95th and 78th Streets.

THE HISTORY OF THE

REIGN OF

CHARLES THE FIRST

BY

JOHN BURNET

OF

THE UNIVERSITY OF OXFORD

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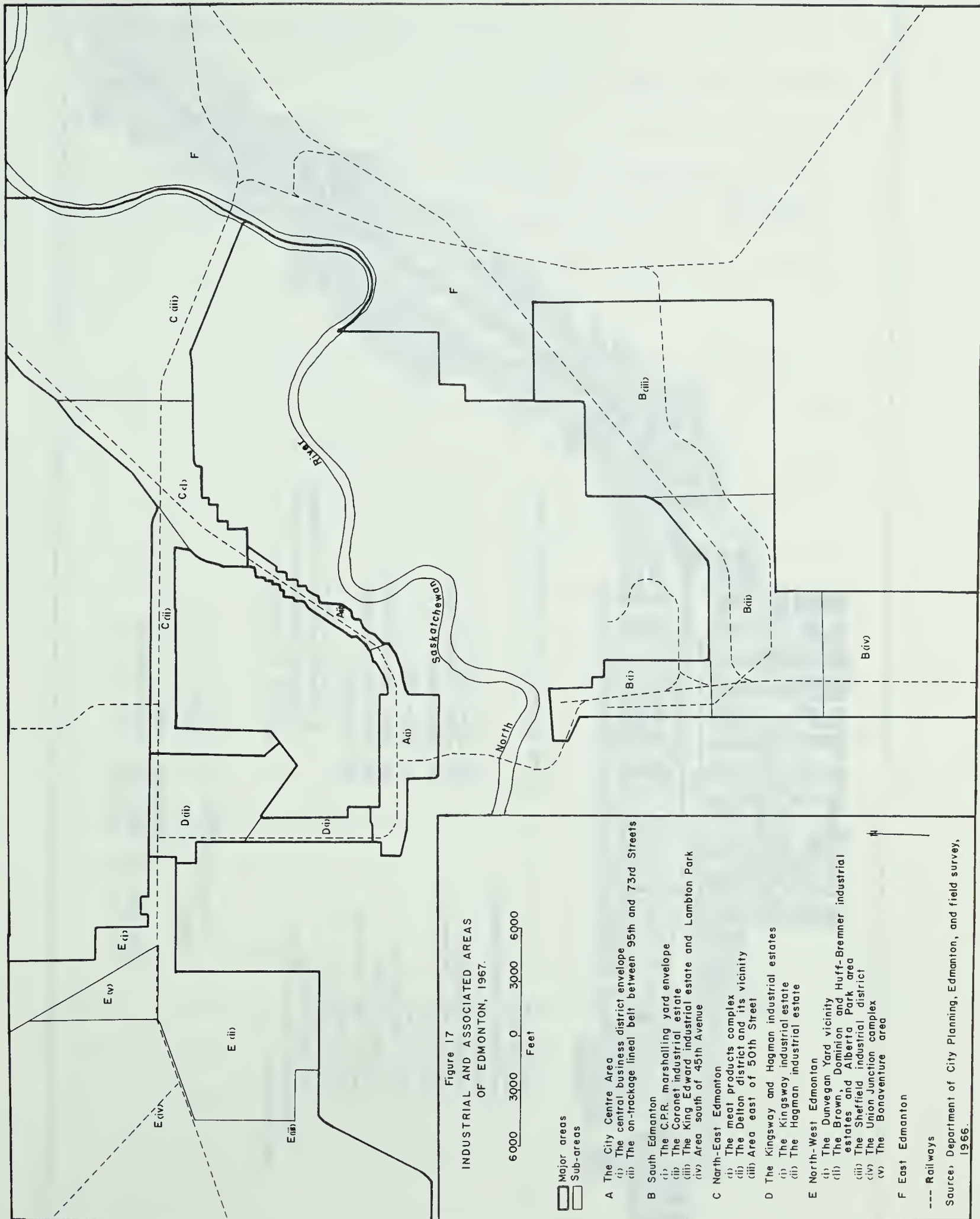
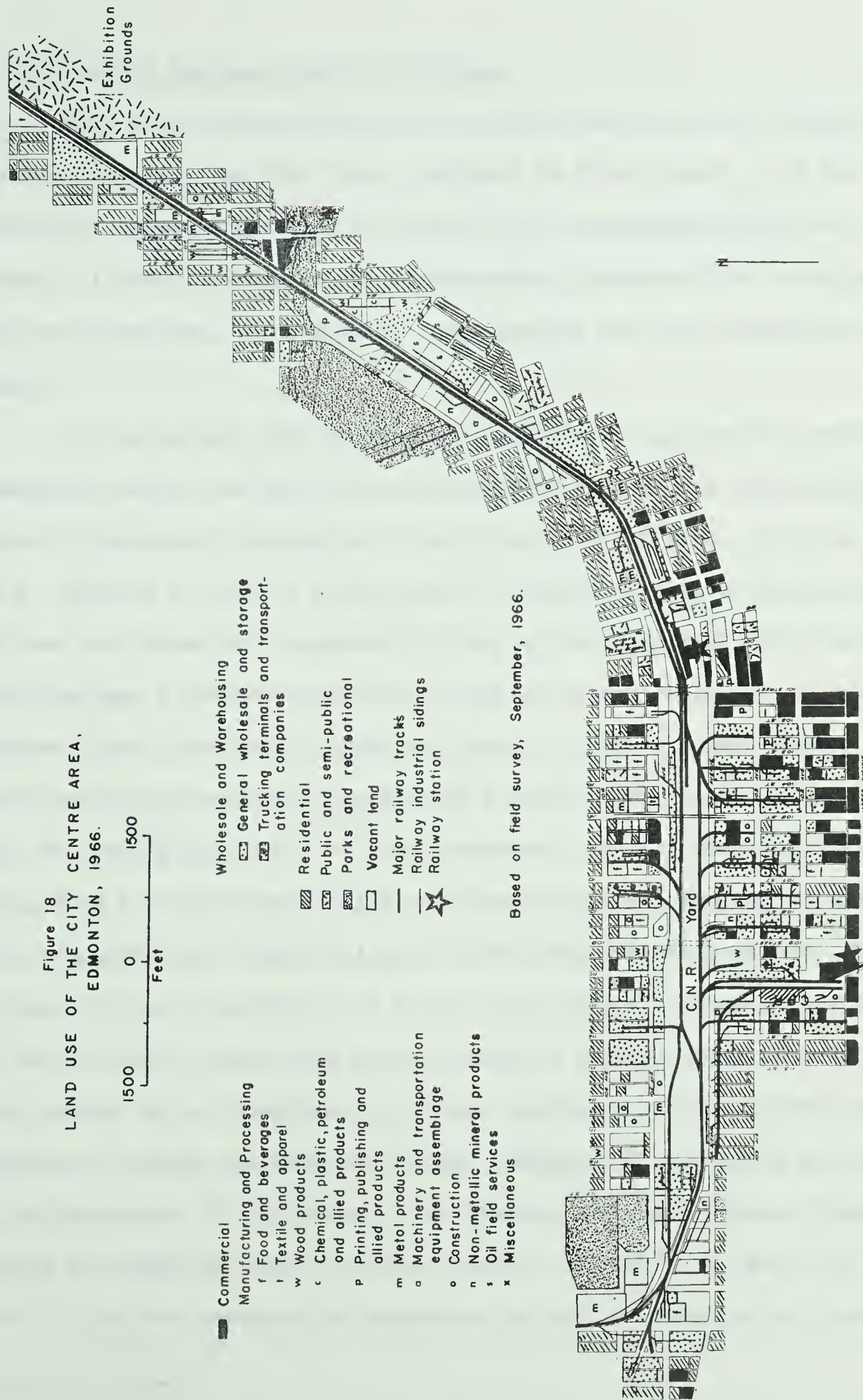


Figure 18
LAND USE OF THE CITY CENTRE AREA,
EDMONTON, 1966.



- | | |
|---|---|
| Commercial | Wholesale and Warehousing |
| Manufacturing and Processing | General wholesale and storage |
| Food and beverages | Trucking terminals and transportation companies |
| Textile and apparel | Residential |
| Wood products | Public and semi-public |
| Chemical, plastic, petroleum and allied products | Parks and recreational |
| Printing, publishing and allied products | Vacant land |
| Metal products | Major railway tracks |
| Machinery and transportation equipment assemblage | Railway industrial sidings |
| Construction | Railway station |
| Non-metallic mineral products | |
| Oil field services | |
| Miscellaneous | |

Based on field survey, September, 1966.



(i) The Central Business District Envelope

This area stretches around the northern margin of the central business district from 95th Street westward to 123rd Street. The most distinctive characteristic of the area is its heterogeneous land use pattern. Although warehouses and manufacturing industries are the major land use categories, other uses in small pockets are found constantly admixed.

It has already been pointed out in Chapter II, that this warehouse-industrial nucleus had been firmly established by 1939. A considerable number of industrial sidings were also woven into the area. In 1954, the C.N.R. recorded a total of 25,554 feet of private trackages installed. As the area has become more compactly filled up since the last World War, there has been a general shortage of land for expansion among the existing premises. Many industrial firms are forced to operate under cramped conditions which accelerate the rate of physical and functional deterioration. With the growing popularity of truck services, the old circulation system and loading and unloading facilities became inadequate and inefficient. Some transportation routes designed in the early twentieth century, for instance, are over-burdened with heavy truck traffic. Subsequently, since the early 1950's, firms which do not require a central location began to move towards the city periphery, and the importance of this central warehouse-industrial envelope has been declining. Examples of relocation are provided by the warehouses of the Hudson's Bay Company, Western Groceries Company Limited and Edmonton Paint and Glass Company Limited.⁴³ As most of the vacated sites are replaced by businesses and offices which do not require

⁴³Much of the information concerning the choice of sites and relocation of industrial and associated businesses referred to in this chapter are derived from the returned questionnaires.

railway services, the significance of industrial sidings has been seriously curtailed. In addition, there is a decrease in the volume of rail traffic due to the general shift to truck services.

In view of the changed transportation demand, some private spurs which were no longer in use have been eliminated by the C.N.R. In 1961, for example, 1,979 feet of private sidings along the back alleys of 103rd and 104th Streets south of 102nd Avenue were retired. Portions of the tracks servicing Dairy Supply Company Limited, Clark Lumber Company Limited and Northern Hardware Company Limited were also removed in 1963. Over the ten year period between 1954 and 1964, private sidings had experienced a net decrease of 3,714 feet. At present, approximately 21,000 feet remain in service in the area. Traffic records of the C.N.R. also show that the two major customers in this zone are MacCosham Storage and Distribution Company Limited and Transco Limited, accounting for 24 per cent and 12 per cent of the total revenue respectively.⁴⁴ The rest of the income is contributed by eighty other firms. In addition, traffic is predominantly inbound (84 per cent), indicating that the district is primarily a warehouse-distributing area with highway transportation handling most of the deliveries.

The land use category which consumes the largest amount of space is wholesale and warehousing. A number of trucking and storage firms such as MacCosham Storage and Distributing Company Limited and Gateway Cartage and Storage Company Limited are concentrated in the area for dis-

⁴⁴The number of cars handled and traffic revenue gained by the C.N.R. in the various industrial and warehousing zones are based on C.N.R., op. cit.

tribution purposes. The former establishment, however, is planning to relocate part of its operations from the city centre to the Strathcona Industrial Park on the southern fringe of the city.⁴⁵ At present, MacCosham's has two trucking and storage centres in Edmonton, one on 107th Street and 105th Avenue, and the other on 103rd Avenue and 109th Street. As traffic and loading and unloading facilities are becoming more and more congested, the company feels it desirable to move their latter operation quarters to a peripheral site. The heavy pressure on land and high price of property have also contributed to the relocation decision. The whole process of removal will be carried out in several phases, and is expected to be completed in about ten years' time.

Most of the wholesale stores in this central area handle general hardware and merchandise goods. Many of them, such as Northern Hardware Company Limited and Marshall Wells Company Limited were established early in this century. Other warehouses, including those of T. Eaton Company Limited were also clustered in the vicinity of the C.N.R. marshalling yard. The majority of these firms pointed out in the returned questionnaires that truck transportation has become more important than rail, and that relocation towards the city periphery would also be undertaken if more desirable sites were found.

All the manufacturing industries which were contacted in this area (twenty-three firms) indicated that trucks have been their most important means of movement. On the other hand, six firms (26 per cent) pointed out that their businesses do not make use of rail services. They also explained that accessibility to railway sidings has no significance in their choice of

⁴⁵Per. comm. J. N. Shortliffe, President, MacCosham Van Lines Limited, Edmonton, September, 1966.

sites. Their concentration in the central area is therefore mainly due to proximity to the professional and office complex, as well as for distribution purposes. A number of printing shops, for instance, favour the central location which is close to their professional customers. Convenient work-home traffic, especially for female employees is another reason responsible for their distribution in the central district.

Manufacturing is the next dominant category in this area. According to Lee,⁴⁶ over one-third of the factories here were constructed before 1914, while 1925 was recorded as the mean date for their establishment. The majority of these plants are small in size, each occupying an area of less than 10,000 square feet. Two distinctive exceptions, however, are the lumber yard of W. H. Clark and Company Limited, and Dominion Bridge Company Limited.

The types of manufacturing premises are the most diversified in nature. While the food and beverages industry accounts for approximately 25 per cent of the firms in this area, there is also a concentration of clothing, jewellery, printing, ink and optical goods establishments.

The remaining parts of this zone are occupied by admixed commercial, business, residential and public land uses. Some vacant lots also exist as parking space in small pockets. Apart from the central post office at 104th Avenue, these establishments do not require railway services. The Planning Department of the City of Edmonton is at present undertaking a study on the land use problems in this area, and it is hoped that urban renewal schemes can be carried out to eliminate incompatible residential

⁴⁶T. R. Lee, A Manufacturing Geography of Edmonton, Alberta, unpublished M.A. thesis, University of Alberta, Edmonton, 1963.

land uses and industrial blight.

(ii) The On-trackage Lineal Belt between 95th and 73rd Streets

Since the arrival of the Canadian Northern and Grand Trunk Pacific Railways to the city centre, ribbon development has evolved along their mainline trackages. A few mining shacks were first constructed to exploit the coal resource in the railway vicinity (refer to Figure 3). However, not until the early 1950's was this area developed more substantially. In 1948, the former site of the penitentiary between 84th and 92nd Streets was zoned for industrial and warehousing uses. This industrial subdivision was then rapidly filled in the early 1950's. To-day, this elongated belt is fully developed as a railway-oriented industrial-warehouse district. There is a general concentration of wood and furniture, and metal working firms, and clothing and paper products factories. Based on the six interviews carried out in this area, it can be generally concluded that railway accessibility is still an important site factor to the businesses in this zone. The majority of these premises are serviced by private industrial sidings, and their sizes are generally larger than those in the central business district envelope. The warehouses of the City Water Works Department and the maintenance yard of the City Engineering Department are also located in this zone. To a minor extent, some old and run-down dwellings are found amidst the industrial and storage structures.

B. South Edmonton

The South Edmonton district, as shown in Figures 19 and 20, includes the neighbouring area of the C.P.R. marshalling yard, the Coronet and King Edward industrial estates, and the ribbon development along the Calgary Trail (Highway 2). The northern portion of this district is one of the earliest established parts of the city. To-day, obsolete industrial and

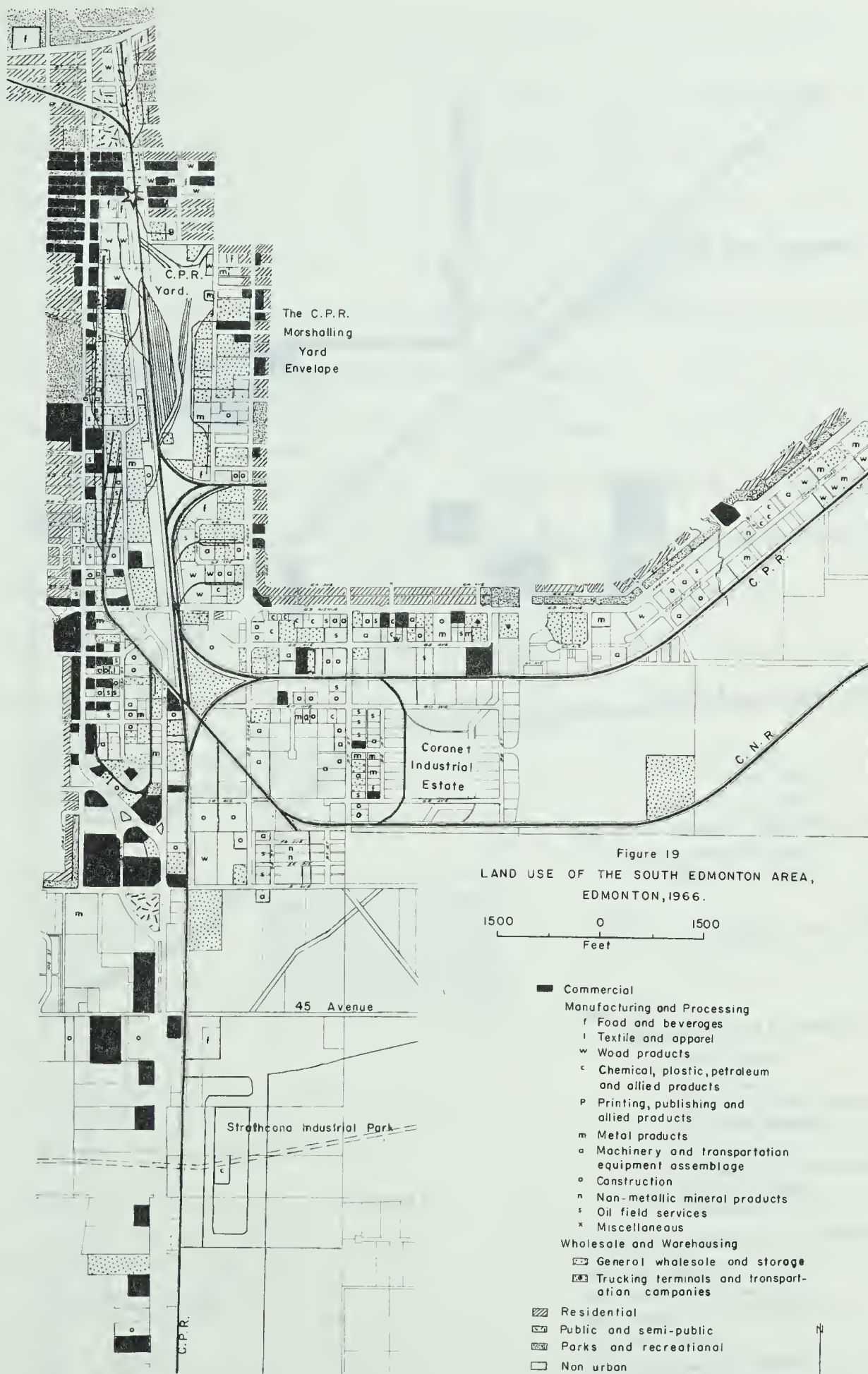
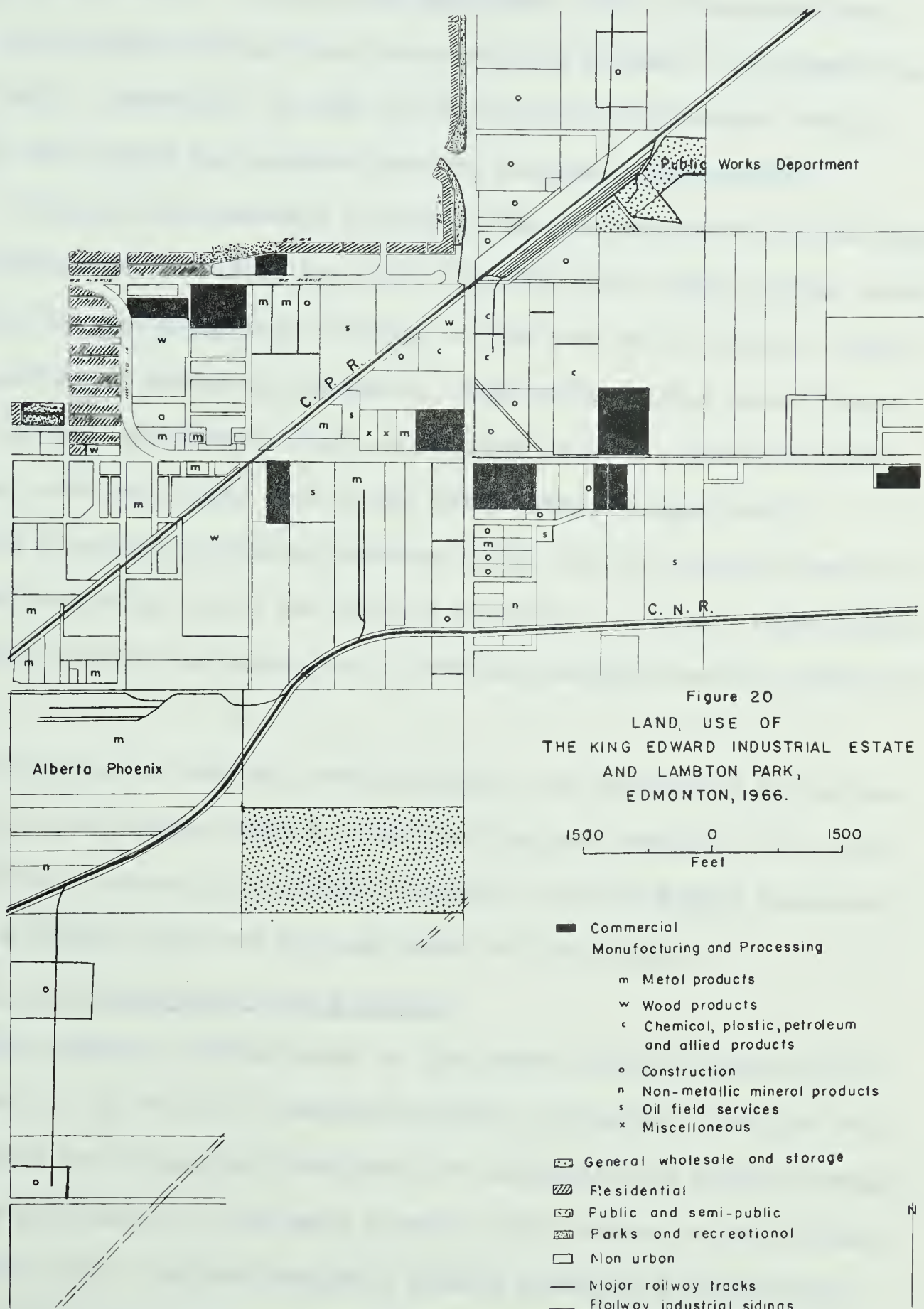


Figure 19
LAND USE OF THE SOUTH EDMONTON AREA,
EDMONTON, 1966.

1500 0 1500
Feet

- Commercial
- Manufacturing and Processing
 - f Food and beverages
 - t Textile and apparel
 - w Wood products
 - c Chemical, plastic, petroleum and allied products
 - p Printing, publishing and allied products
 - m Metal products
 - a Machinery and transportation equipment assemblage
 - o Construction
 - n Non-metallic mineral products
 - s Oil field services
 - x Miscellaneous
- Wholesale and Warehousing
 - General wholesale and storage
 - ▤ Trucking terminals and transportation companies
- ▨ Residential
- ▧ Public and semi-public
- ▩ Parks and recreational
- Non urban
- Major railway tracks
- Railway industrial sidings
- ★ Railway station

Based on field survey, September, 1966



commercial premises, which were originally oriented towards the C.P.R. railhead, still exist. On the other hand, more recent development has taken place towards the south and the east along Highway 2 and Highway 14 respectively. Generally, the age of the industrial structures tends to decrease the farther the distance from the original urban nucleus.

A distinctive advantage to some of the businesses here is the direct joint services of the C.N.R. and the C.P.R. The C.N.R. 1964 records reveal that, with but two exceptions, traffic in this zone was relatively evenly distributed among twenty-six customers. The two exceptions were Zeidler Plywood Co. Ltd. and Alberta Concrete Products Co. Ltd., which accounted for 37 per cent and 21 per cent of the total revenue respectively. Statistics of private trackages operated by the C.N.R. also show that most areas were opened up within the previous ten years. In 1964, approximately 15,000 feet of private-sidings were in service, compared to only 4,800 feet in 1954.

According to land use characteristics, the entire area can be subdivided into four zones: the C.P.R. marshalling yard envelope, the Coronet industrial area between 63rd and 45th Avenues, the King Edward Industrial estate and Lambton Park, and the area south of 45th Avenue.

(ii) The C.P.R. Marshalling Yard Envelope

This district extends north of 63rd Avenue to Saskatchewan Drive in the vicinity of the C.P.R. marshalling yard. All areas along the railway trackages are intensively developed for industrial and storage purposes. Many firms established by the early pioneers still remain in the northern part of this zone. They are basically closely concerned with the manufacturing and storage of agricultural products and with farm machinery.

United Grain Growers Limited and the Purity Flour Mill are typical examples which belong to this category. Gainers Meat Packing Plant in the Mill Creek Ravine is another illustration of the original strong influence of the railway on industrial sites. At present, part of the former Edmonton, Yukon and Pacific Railway is still preserved for the service of this factory. Other minor establishments in the area include food and beverages, printing and wood products manufacturing plants.

Development in the southern part of this zone is of a more recent origin. Most land to the immediate south and east of the C.P.R. classification tracks has been subdivided since the early 1950's. In 1953, the C.P.R. constructed more than 8,000 feet of public sidings to service the surrounding establishments. While the majority of the manufacturing plants are concerned with machinery, metal and wood products, there are also a number of firms servicing the oil industry. Import Tool Company Limited and the C.P.W. Valve and Instrument Service Company Limited, for instance, are located on the C.N.R. trackage. Since the mid 1950's, many wholesale-distributing companies supplying agricultural and oil equipment have also been attracted to this area. General warehouses for merchandise goods, such as that of Woodward's Company, are operated in the area on railway sidings as well.

Some commercial development is to be found along the 104th Street thoroughfare and 82nd Avenue to the immediate west of this industrial-warehouse belt. Most of the businesses are service stations, car-sales lots and general retail companies.

Of the forty-seven firms which were interviewed in this zone, forty-five indicated that access to truck transportation was essential in their site selection. However, only thirty-two

companies (60 per cent) use rail services. The majority of those which do not make use of the railways are small furniture workshops, firms servicing the oil drilling industry, and trailer courts. A few of them indicated that although rail services are not used in their operations, their concentration in the area is essentially induced by the early established commercial centre and other railway-oriented firms which are related to their businesses.

(iii) The Coronet Industrial Estate

This area is bounded by 63rd and 45th Avenues and 75th and 105th Streets. Part of this district, originally called the Rosssdale Subdivision, was formerly used as a city dump. However, due to the heavy demand for industrial land since the Leduc oil discovery, the area was reclaimed and designated for industrial and related uses. Starting in 1954, businesses which are oriented towards both railway and highway services began to enter the area. In 1956, the C.P.R. constructed 2,187 feet of private sidings to service the newly established firms. In 1957, an addition of 1,399 feet was built by the C.N.R. Company. In the following two years, further expansion of the zone proceeded towards the west, and by 1959, a 3,665-foot long loop had been completed by the C.N.R. between 103rd and 104th Streets. At present, some industries and warehouses are serviced directly by both the C.N.R. and the C.P.R.

Land use development throughout the entire area is characterized by small, orderly arranged factories in modern condition. The majority of the firms here are engaged in various aspects of the oil industry. Manufacturing and storage plants dealing in oil field equipment, machinery, sheet metal, pipes and valves, and wood products are very numerous. A few

larger plants are also located in this zone. They include Canada Can Company Limited and Poole Construction Company Limited. Although 84 per cent of the firms which were contacted use rail services as an important means of movement, five companies reported that their operation is independent of the railways. These few establishments are engaged in construction and the oil drilling industry. Again, their development in this area was mainly attributed to the well established commercial and industrial complex rather than the railway tracks.

In contrast to the district around the C.P.R. station, there is a large amount of vacant land in the area. Since the entire zone is already well serviced with basic utilities, it is the City Planner's desire that this area be filled up with more industrial and related uses of the "high-class performance" category.⁴⁷ With easy accessibility to both the C.N.R. and the C.P.R., this area does appear to provide satisfactory sites for railway- and/or highway-oriented industries and related use. For the protection of the neighbouring residences, buffer strips have been provided north of Argyle Road.

Other land use types found in this area are mainly highway-commercial development and agricultural land. Examples of the former group are service stations, motels and trailer courts.

(iv) The King Edward Industrial Estate and Lambton Park

Basically, extensive industrial development in this area did not take place until the mid 1950's (see Figure 20). After the C.N.R. connection between the Camrose Subdivision and South Edmonton was completed in 1952, this area became an attractive site for manufacturing industries. Easy

⁴⁷Per. comm. P. Ellwood, Assistant Director of Planning, City of Edmonton, Edmonton, October, 1966.

accessibility to both railway and highway systems, plus the relatively cheap and spacious land were strong inducements for its growth. Accordingly, many industrial firms began to enter the area after 1955. In 1956, the C.N.R. constructed 2,890 feet of private sidings to service Premier Steel Products Limited. In 1957 a few more metal working plants were established in its vicinity. Most significant among them was Alberta Phoenix Pipe and Tube Limited, which installed 2,440 feet of C.P.R. private spurs. In recent years, the area has experienced a considerable growth, so that more railway sidings have been added for industrial services.

To-day, industrial plants in this area are characterised by their relatively large, one-storey buildings. The majority hold enough space for expansion in the near future. There is a concentration of oilfield equipment manufacturing and servicing plants, and construction premises. The only prominent storage operation in the area is provided by the warehouses of the Provincial Public Works Department. Along Highway 14, some commercial establishments can also be found.

(v) Area South of 45th Avenue

Urban development south of 45th Avenue is very limited as the southern edge of the city is approached. However, besides some highway oriented commercial and servicing establishments, there are a few manufacturing firms spotted along the transportation routes. The most significant feature is Labatt's Alberta Brewery Limited located along the railway trackage immediately east of Highway 2. This firm was opened in 1962, and is now serviced by a 1,035 foot-long private siding of the C.P.R. According to the company's general manager,⁴⁸ proximity to both railway and

⁴⁸Per. comm. E. McManus, General Manager, Labatt's Alberta Brewery Limited, Edmonton, October, 1966.

highway access has played an important role in their original site selection. Further south from this brewery is the site of the Strathcona Industrial Park which is now being developed. Since this development project has already been mentioned in an earlier section of this chapter no further comment will be made here.

C. North East Edmonton

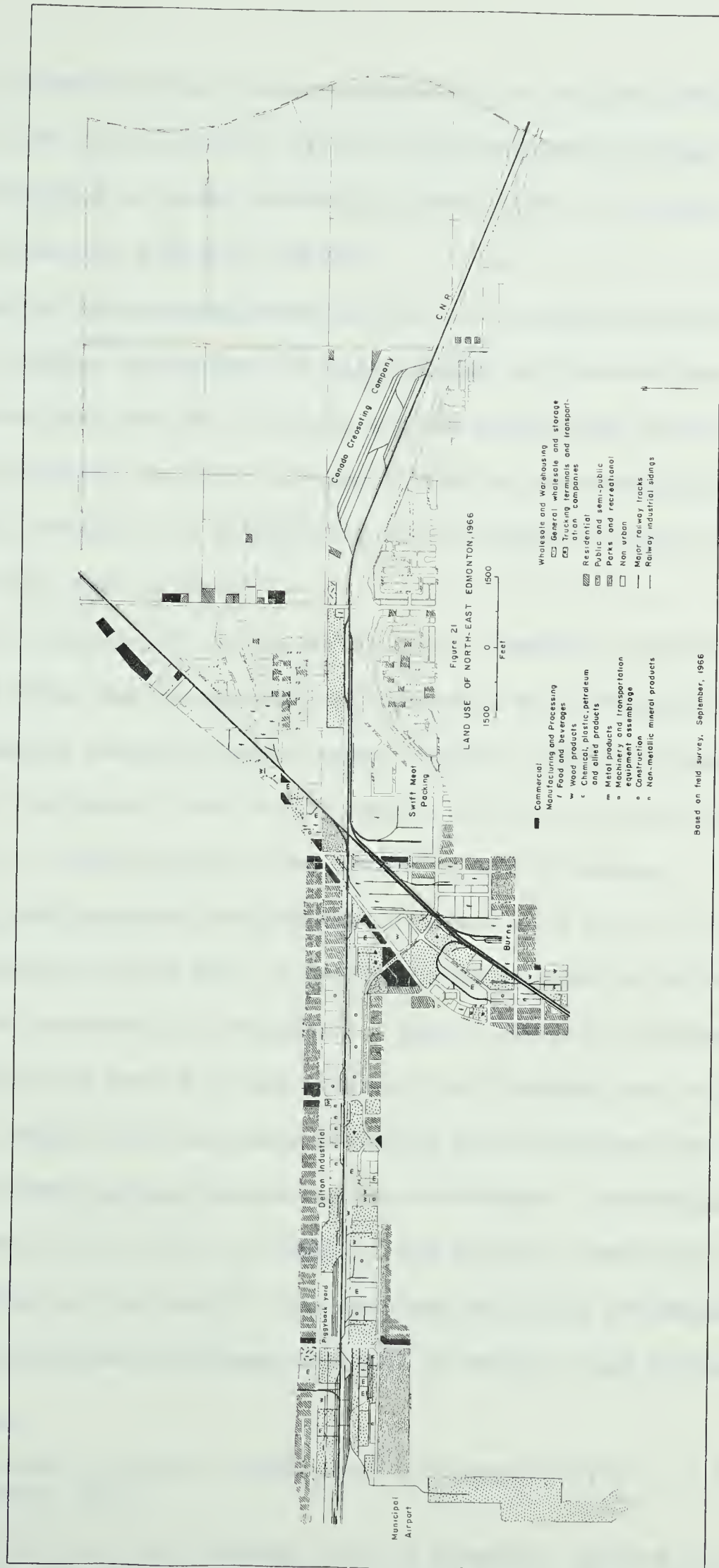
This district, as shown in Figure 21, comprises the area north of the Exhibition Grounds, and bounded by the North Saskatchewan River and the Calder Yard. The few establishments in the eastern part of the Municipal Airport will also be included in this discussion. Generally, three distinctive zones can be recognized: the meat products complex, the Delton district and its vicinity, and the area east of 50th Street.

(i) The Meat Products Complex

The meat products complex extends north of 118th Avenue from the Fort Trail to 50th Street in the east. Its origin as the small village of North Edmonton, which sprang up at the juxtaposition of the railway trackages, has already been discussed in Chapter II.

At present, this area is dominated by meat packing, processing and rendering industries. Plants which involve animal slaughter and meat processing include Burns and Company Limited, Canada Packers Limited, Swift Canadian Company Limited and Alsask Processors. Other firms in the neighbouring zones are engaged in the processing of sausages, smoked meat, etc., or the transformation of inedible animal products into useful by-products. With only a few exceptions along the Fort Trail, these industrial firms still produce a large volume of railway traffic especially for the distribution of products to Northern Alberta.⁴⁹ Their operation and site

⁴⁹Per. comm. J. I. Lessard, Assistant Engineer, N.A.R., Edmonton, July, 1966.



Based on field survey, September, 1966

selections are therefore still closely related to the railway trackages. The majority of the factories here are old, multi-storey buildings. Since some plants are placed in close proximity to each other, they share some common services such as effluent disposal.

A number of other establishments which are associated with the meat processing and packing activities are also located in the same area. To the east of the plants are the feed lots and the stockyards, while to the west are the tanneries. As truck transportation has been providing more efficient cattle haulage, the significance of the railway tracks along the stockyards has been much reduced.⁵⁰

During the early 1950's, the sites to the immediate north-west of Burns Company Limited was designated for industrial and warehousing uses. At present, Edmonton Concrete Block Company Limited, Dominion Tanneries Company Limited and Fekete Construction Company Limited are the largest operations, all of them being serviced by C.N.R. private spurs.

As this meat products complex was developed long before there was any planning control on land use, it has created some problems which seem unpleasant to the surrounding communities. Some residents have complained that nuisance has been caused by the frequent road crossing and railway traffic. These people have also been suffering from the obnoxious odors emitted from the meat packing plants and the stockyards. Accordingly, the Planning Department of the City of Edmonton has recently completed a study on the difficulties of the area.⁵¹ The planning officials recommended that daily clean-up operations and proper disposal of refuse, plus sufficient

⁵⁰Per. comm. C. Quilley, Industrial Development Officer, C.N.R., Edmonton, September, 1966.

⁵¹Department of City Planning, City of Edmonton, Factors Affecting Land Development in North East Edmonton, Research Report No. 3, Edmonton, 1966.

ventilation at all stages should be practised by all meat packers.⁵² They also concluded that ". . . there appears little justification for the presence of feedlots in an urban community."⁵³ However, no definite decision on the future development of this area has been made as yet.

(ii) The Delton District and Its Vicinity

Apart from the area occupied by the Electrical Department of the City of Edmonton, development of this district occurred mainly after the end of the Second World War (see Figure 21). The C.N.R.-owned land between 90th and 97th Streets was the first subdivision occupied by industrial and related land uses. After the agreement of the Planned Expansion Scheme, the area further east was more extensively opened up. The land between 93rd and 97th Streets north of the C.N.R. mainline was also laid out for piggyback operations. In 1953, more than 2,000 feet of private tracks were constructed to service O.K. Construction Company Limited and a few farm equipment firms. In recent years, another 2,000 feet were added for the automobile unloading compound on 90th Street.

To-day, the entire district is well established as an industrial-warehousing belt, serviced by more than 30,000 feet of C.N.R. industrial sidings. Major customers of the railway company in this zone are Melchin Transportation Company Limited and the Dominion Auto Carriers. Manufacturing firms in the area are mainly engaged in construction, metal working, wood working and non-metallic minerals. A few trucking and storage premises are also located close to the meat packing complex along the Fort Trail, so that both railway and highway transportation can be conveniently provided.

⁵²Ibid., p. 16

⁵³Ibid., p. 13

Based on the twenty-eight personal communications carried out in this area, however, it is found that ten of the firms within this area (36 per cent) do not make use of railway services. Easy road access on the other hand, was an important factor in their original site selections. The majority of these businesses are engaged in construction and wholesale equipments. In most areas to the south, buffer strips have been provided to separate the industrial and associated land uses from the residences. This same function is also performed by the cemetery to the west of 97th Street.

The limited number of establishments on the eastern part of the Municipal Airport are also serviced by railway spurs. Nevertheless, since the storage quarters of the Department of National Defence have been removed from the area, only a limited amount of traffic is handled. Two significant examples of the railway customers are the storage site of the Electrical Department of the City of Edmonton, and the manufacturing plant of North West Industries Company Limited.

(iii) Area east of 50th Street

Most land east of 50th Street to the North Saskatchewan River is at present used for agricultural purposes or left vacant. The only development which is closely related to the railway is Canada Creosoting Company Limited. Since its establishment in 1924, the plant has undergone a considerable expansion. It is serviced by C.N.R. private spurs, and a large portion of its site is used for lumber storage. As the soil footing is not stable enough for the use of fork lifters, the company is employing cars and cranes on rails to move its products around its property.⁵⁴

⁵⁴Ibid., p. 19.

However, railway traffic within the plant operation would not be an essential requirement if physical conditions allowed the use of fork lifters.

It is felt by the City's planning officials that the presence of this manufacturing firm is a hindrance to residential development in the surrounding area.⁵⁵ They are aware of the air pollution, unpleasant noise and ugly appearance of the piled lumber which tend to sterilize the potential of the adjacent land. They have therefore recommended that any further residential development in the district south of the C.N.R. mainline should be contingent on the removal of the creosote plant.⁵⁶

D. The Kingsway and Hagman Industrial Estates

As illustrated in Figure 22, this district can be sub-divided into two units: the Kingsway industrial estate which extends from 107th Avenue to 118th Avenue, and bounded by 119th and 121st Streets, and the Hagman industrial estate which is in the vicinity of the Municipal Airport and Calder Yard. Basically, the former unit is a warehouse-distributing area, while the latter is a manufacturing-industrial zone.

(i) The Kingsway Industrial Estate

The majority of the warehouse development in this area took place during 1950 to 1955. From the physical-site viewpoint, this district has many advantages over the wholesale-warehousing district of the city centre. The area here is more properly serviced with utilities, transportation systems and loading and unloading facilities. Pressure on land supply was also less than that in the central area. It therefore became the site of

⁵⁵Loc. cit.

⁵⁶Loc. cit.

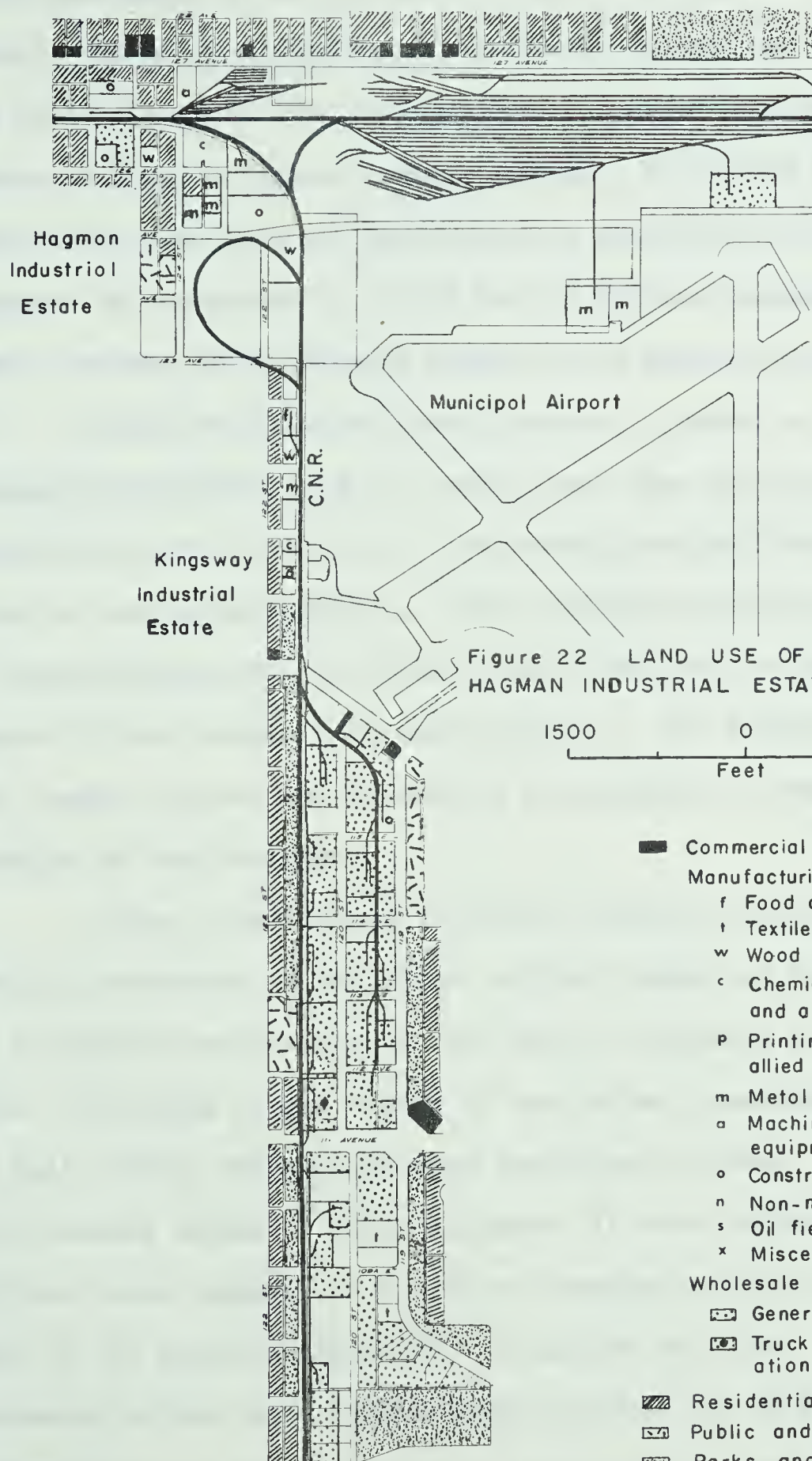


Figure 22 LAND USE OF THE KINGSWAY AND HAGMAN INDUSTRIAL ESTATES, EDMONTON, 1966.

1500 0 1500
Feet

- Commercial
- Manufacturing and Processing
 - f Food and beverages
 - t Textile and apparel
 - w Wood products
 - c Chemical, plastic, petroleum and allied products
 - P Printing, publishing and allied products
 - m Metal products
 - a Machinery and transportation equipment assemblage
 - o Construction
 - n Non-metallic mineral products
 - s Oil field services
 - x Miscellaneous
- Wholesale and Warehousing
 - General wholesale and storage
 - Trucking terminals and transportation companies
- Residential
- Public and semi-public
- Parks and recreational
- Vacant land
- Major railway tracks
- Railway industrial sidings

Based on field survey, September, 1966.

many warehousing firms which succeeded in escaping from the congested city centre. Examples of businesses which went through such a relocation during the early 1950's include Merco Wholesale Limited (wholesale grocers) and Firestone Tire and Rubber Company Limited. By the mid 1950's, this area had already been maturely developed as a warehouse-distributing zone, serviced by approximately 14,000 feet of private trackages. Since then, there has been no significant change in its land use pattern.

During the last few years, however, a number of firms which were originally relocated from the central area have moved again to an even more peripheral part of the city -- the Dominion and Huff-Bremner industrial areas in north-west Edmonton. These businesses were either expanding at an unprecedented rate, or found it more profitable to move to a new location with even cheaper land and properties. The warehouses of Hudson's Bay Company Limited and Minneapolis Farm Equipment Company Limited are examples of this category.

To-day, the Kingsway industrial estate is characterized by its orderly arrangement of buildings, railway tracks and road systems. There is a general concentration of food and oil equipment wholesale stores in the area. According to the records of the railway companies, traffic revenue is quite evenly distributed among twenty-seven firms. The warehouse-distributing nature of their businesses is also reflected in the fact that 200 cars were shipped out in 1964 as compared with the 3,128 received. Most of the distributing traffic is handled by trucks. All the businesses contacted in this zone (twenty firms) pointed out that rail and road accessibility is an important site requirement. The entire area is also well-landscaped, being separated from the neighbouring residences by

buffer parks.

(ii) The Hagman Industrial Estate

Although this area is in close proximity to the Municipal Airport, very few manufacturing firms here are connected with air transportation. Instead, industrial activities in this area are of a more diversified nature. While a few metal working plants are clustered to the immediate west of Calder, several construction firms are also found in the neighbouring locations. Other minor factories are engaged in printing, wood-working and plastic products. As most of these small establishments can not afford to install private spurs, a public siding has been provided by the C.N.R. at the junction of 126th Street and 126th Avenue (see Figure 22). Nevertheless, railway traffic in this zone is relatively limited, and there is still a considerable amount of vacant land.

E. North-west Edmonton

As illustrated in Figure 23, this district is held to embrace the area west of 127th Street along the C.N.R. mainline, and the large tract of land west of 142nd Street and north of 111th Avenue. Although intensive development has already taken place at the Huff-Bremner industrial estate, a large amount of vacant land still exists in the remaining area. The entire district can be subdivided into five zones: (i) the Dunvegan Yard vicinity, (ii) the Brown, Dominion and Huff-Bremner industrial estates, and the Alberta Park area, (iii) the Sheffield industrial area, (iv) the Union Junction complex, and (v) the most recently opened Bonaventure industrial district.

(i) The Dunvegan Yard Vicinity

Not long after the N.A.R. Dunvegan Yard was established in the late

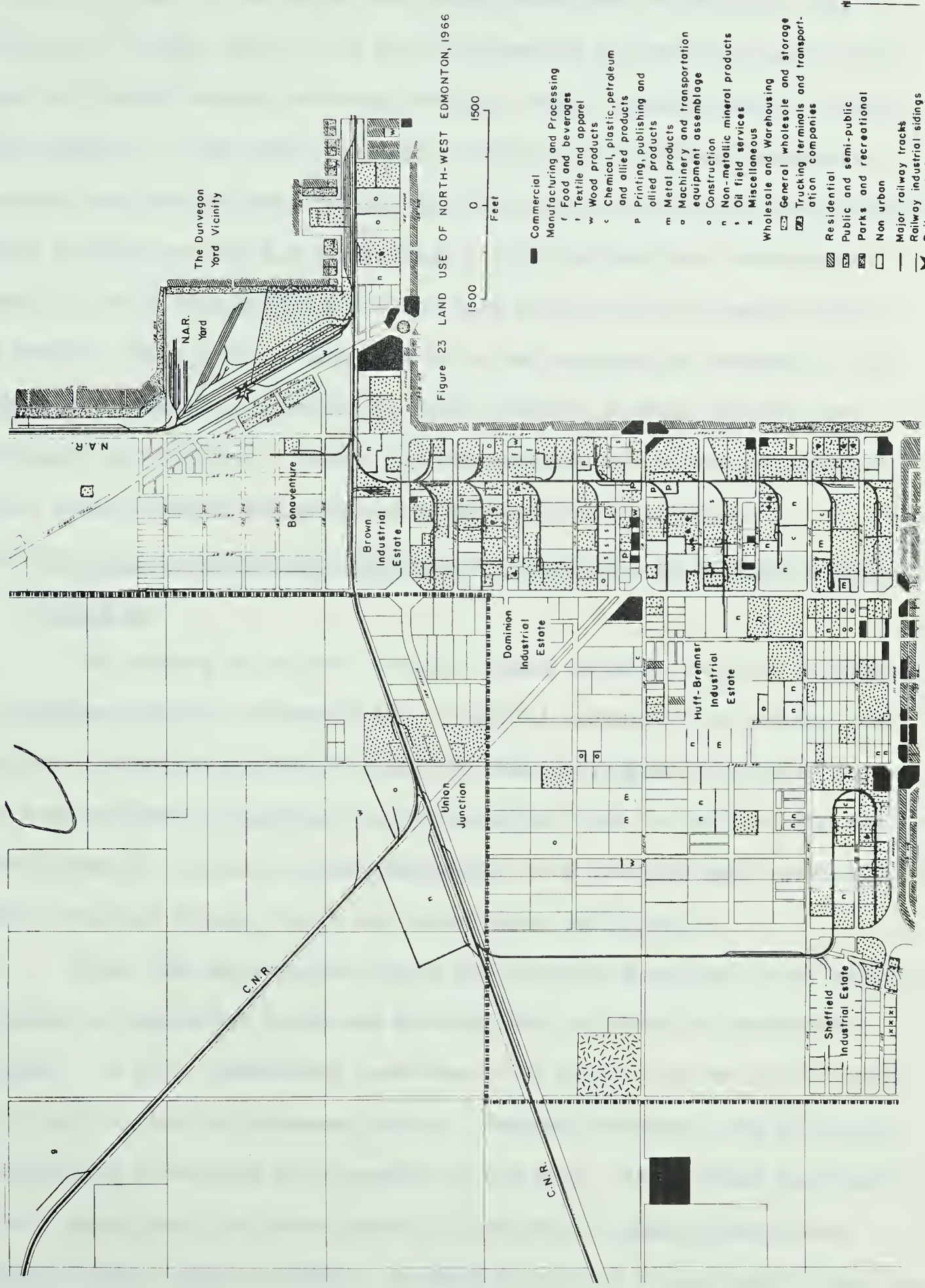


Figure 23 LAND USE OF NORTH-WEST EDMONTON, 1966

1920's, a number of saw mills and lumber yards were attracted to its vicinity. To-day, much of the land surrounding the railway yard is still used for lumber storage and wood working. Nelson Lumber Company Limited, for instance, is the most prominent customer of the railway companies. Another early-established feature in this zone is the Dominion Government's grain elevator on the C.N.R. trackage. Nevertheless, most development south of the C.N.R. mainline did not take place until the early 1950's. At present, this area is dominated by a few construction companies, one cement and concrete manufacturing plant and some storage grounds for machinery and trailers. Except for the construction companies, most of these establishments are serviced by private railway sidings.

(ii) The Brown, Dominion and Huff-Bremner Industrial Estates and Alberta Park Area

The opening up of this district began in 1953, when the City Council of Edmonton decided to abandon the industrial pocket of the old American Railhead. This large tract of land was then designated to provide sites for some relocated industries and warehousing firms, as well as for new establishments. Under private developers, this area was well serviced with roads, railroad access, water and other basic utilities.

After the major railway track was extended from the C.N.R. mainline, a number of industrial leads and sidings were projected at successive periods. In 1954, industrial leads Nos. 1, 2 and 3, and two public spurs were built in the Huff-Bremner estate. Several industrial and wholesale-distributing firms were then located in the area. Among those serviced by private spurs were the Parts Depot of Ford Motor Company Limited and Monarch Lumber Company Limited. As this estate was being rapidly taken up,

industrial leads Nos. 4 and 5 were added in 1957. From thence, this area was more intensively occupied; the warehouses of Imperial Oil Company Limited and Christie Storage Company Limited being the most significant businesses. In 1959, a considerable number of private sidings were constructed to service the concrete manufacturing plants of O.K. Construction Co. Ltd. and the City Engineering Department. In 1960, four further industrial leads (Nos. 6 - 9) were extended to the Dominion estate, which was awaiting industrial and storage occupance. This new industrial subdivision was eventually dominated by a concentration of food wholesale and construction companies, as well as trucking and warehouse-terminals.

Many firms formerly established in the city centre and the Kingsway industrial estate have relocated in this area. These businesses stated that the major reasons for their removal were better transportation systems and more spacious properties. Western Floor Coverings Company Limited, for example, was moved from the central area, whereas MacMillan Bloedel Paper Products Company Limited was relocated from the Kingsway estate.

At the Brown industrial estate immediately south of the C.N.R. mainline, limited development has also occurred since the early 1960's. The area is now taken up by a number of food wholesaling firms and machine shops. A few scattered metal working and concrete manufacturing plants have also been erected in the Alberta Park area at the western edge of the city.

At present, the southern portion of this district is quite densely occupied, while the northern and western part are still under development. Approximately 10,700 feet of private trackages are installed, and the traffic handled by the C.N.R. is contributed by forty-eight customers.

A considerable number of cars are carried through interchanging and switching systems among the railway companies, because direct access to this area is possible only by the C.N.R. The C.N.R.'s 1964 record also shows that 85 per cent of the cars handled were inbound, as this zone is essentially a wholesale and warehouse-distributing centre. Nevertheless, there are also a number of industrial premises, mainly engaged in the manufacturing of non-metallic mineral products, metal working, construction, printing and publishing, and plastic goods (see Figure 23). Generally, this district is characterized by its well-organized railway and road systems, and by its single-storey and low density development.

It should be pointed out here that a good deal of land, especially in the northern part of this district, is still vacant. Although the main railway leads have already been projected, many lots of adjacent land are not yet occupied. It thus appears that there is a surplus of railway sidings in this zone. Had the development of this entire district been directed to grow more compactly through phasing, such wastage of railway spurs might, perhaps, have been avoided. It is the official policy of the Planning Department of the City of Edmonton to keep up the high performance standard and to encourage the growth of this industrial-warehousing zone.⁵⁷ It is hoped that this district will act as a more attractive peripheral site, inducing the relocation of firms from the central area of the city.

(iii) The Sheffield Industrial District

Preliminary development of industrial and associated land uses in this district began in 1955, when the area was still part of the Town of

⁵⁷Per. comm. P. Ellwood, Assistant Director of Planning, City of Edmonton, Edmonton, October, 1966.

Jasper Place. By 1958, a loop-track from the Wabamun Subdivision of the C.N.R. was completed and the first site along 111th Avenue was occupied (see Figure 23) by an equipment company. Although a few other wholesale-warehousing premises were introduced in the early 1960's, no large-scale or rapid development has yet occurred. At present about ten industrial and associated firms are located in the area, five of them being serviced by private railway sidings. According to its private developer, Melton's Company Limited, the management of this "industrial park" is a failure.⁵⁸ Since most of the land here is beyond the four-miles switching limit from all the railway interchanging points in Edmonton, it is economically accessible only by the C.N.R. Another important drawback has been the general shortage of proper utilities and road systems. It therefore appears very unlikely that extensive growth will take place in this area in the near future.

(iv) The Union Junction Complex

Industrial and associated establishments at the Union Junction are characterized by their space-consuming operations. These premises are also significant customers of the railway companies, as both their new materials and finished products (e.g. cement and lumber) are bulky and heavy. Of all the cars handled in this zone in 1964, 80 per cent were contributed by the Inland Cement Company Limited, while 16 per cent was produced by Western Plywood Company Limited. Other businesses in the area at present are engaged in construction work and wholesale building materials. Further north-west from this railway junction, a brick and tile manufacturing plant

⁵⁸D. Rhyason, Field Exercise Report, Phase III, Industrial Land Use Planning, unpublished report, Department of Geography, University of Alberta, Edmonton, 1967.

is established on the C.N.R. trackage. Land immediately surrounding all these operations is under agricultural or associated uses.

(v) The Bonaventure Area

This is the newest district in Edmonton designated for industrial and associated purposes. In 1966, an industrial lead track was projected from the C.N.R. mainline, and the warehouses of the United Farmers of Alberta Co-operative have been moved into the area. As a northern extension of the Dominion and Brown industrial estates, the City Planners expect this area to grow as a wholesale-warehouse nucleus.⁵⁹

F. East Edmonton

This area at the eastern outskirts of the city (see Figure 24) is distinguished from all other industrial districts in Edmonton. With the exception of a few construction and metal-working firms, industrial establishments in this area are exclusively engaged in the manufacturing of petroleum, chemical, plastic and allied products. Basically, they can be classified under two categories: the oil refineries and petro-chemical works.

There are many favourable site factors which have induced the growth of this industrial area. Authorities at the oil refineries⁶⁰ indicated that proximity to the pipeline terminal has been the vital determinant, as it is the most economical and convenient means by which their raw material (crude oil) can be brought into their plants. Since

⁵⁹Per. comm. P. Ellwood, Assistant Director of Planning, City of Edmonton, Edmonton, October, 1966.

⁶⁰Per. comm. F. B. Doull, Plant Superintendent, Imperial Oil Limited, Edmonton Refinery, Edmonton, August 1966; and W. Phipps, General Manager, Texaco Canada Limited, Edmonton, August, 1966.

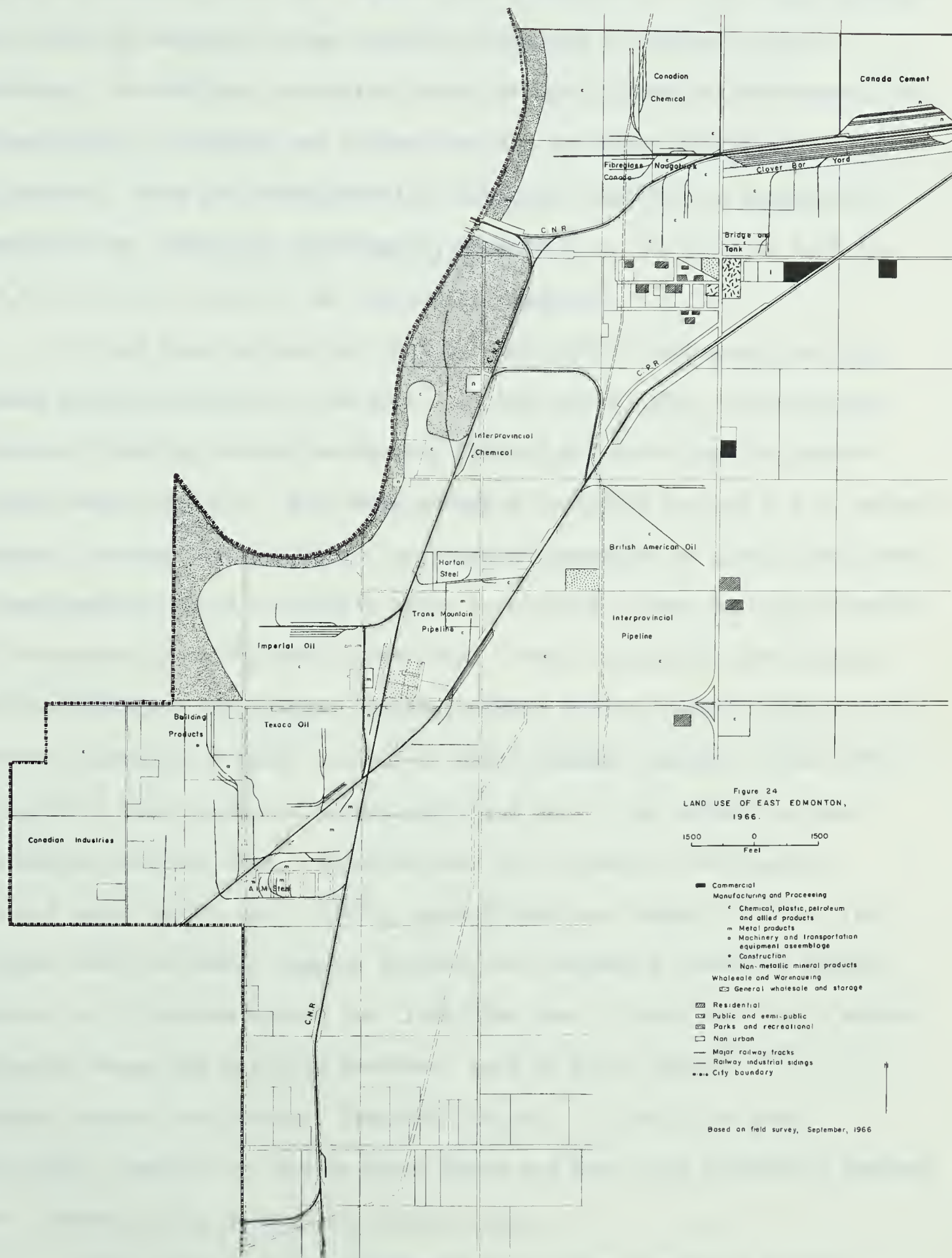


Figure 24
LAND USE OF EAST EDMONTON,
1966.

1500 0 1500
Feet

- Commercial
- Manufacturing and Processing
 - ◊ Chemical, plastic, petroleum and allied products
 - ◊ Metal products
 - ◊ Machinery and transportation equipment assemblage
 - ◊ Construction
 - ◊ Non-metallic mineral products
- Wholesale and Warehousing
 - ◊ General wholesale and storage
- Residential
- Public and semi-public
- Parks and recreational
- Non urban
- Major railway tracks
- Railway industrial sidings
- City boundary

Based on field survey, September, 1966

the petro-chemical works are to some degree dependant on the oil refineries for their raw materials, they are also attracted to locate in their vicinity. In addition, extensive tracts of land, lower tax assessment and accessibility to highway and railway outlets are other significant influences. From the transportation viewpoint, the area is especially desirable for industrial development, because it is serviced by both the C.N.R. and C.P.R., and by the Provincial highways.

It has been pointed out that by early 1952, four manufacturing plants had been erected in the area. At the end of 1952, the Polythene Plants of Canadian Industries Company Limited and Union Carbide Canada Limited were completed. They were serviced by 12,658 feet of C.P.R. private sidings. During the mid 1950's, development proceeded at a very rapid rate. A considerable number of private spurs were added to meet the requirements of the currently-established industries. These large-scale developments included Imperial Oil Company Limited, Canada Cement Company Limited, the Monsanto Chemicals Company and A.I.M. Steel Company Limited. After 1956, the general boom appeared to level off, and only a few industries were introduced into the area. Nevertheless, very extensive development started again in the early 1960's, when Fibreglass Company Limited, Twin Bridges Sand and Gravel Company Limited, and Naugatuck Chemicals Company Limited all clustered around the Clover Bar area. There was also a marked expansion among the existing premises, such as Union Carbide Company Limited and Canadian Chemical Limited. In 1965, two more industrial companies -- Horton Steel Works and Shaw Pipe Protection Limited were located in the area on the C.N.R. line.

To-day, this district possesses the largest number of private sidings (approximately 63,400 feet) of all areas in Edmonton. The

returned questionnaires also indicate that proximity to the railway spurs was, and still is, one of the important factors in their choice of sites. However, an official from one oil refinery expressed the view that truck competition is becoming keen, as new supply points in Manitoba and Saskatchewan and increasing markets in the Edmonton surrounding region have produced more truck movements than before.

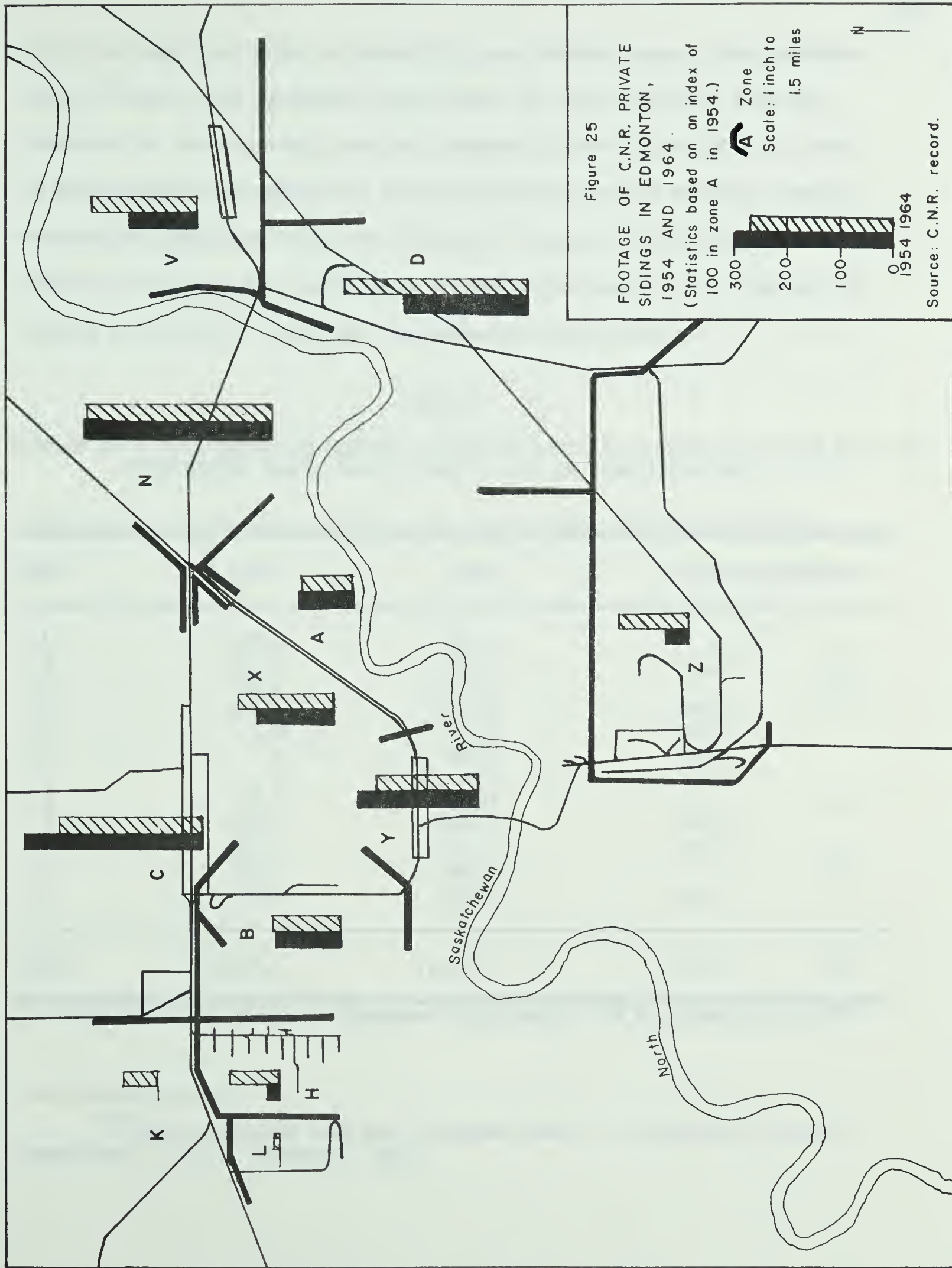
It is the wish of the Regional and City Planning Authorities to continue the concentration of obnoxious industries in this eastern edge of the city.⁶¹ The majority of the existing companies also own surplus land for future expansion. Nevertheless, their performance standards, especially their odorous emissions should be carefully controlled, so that residential development in the neighbouring land, if required, would not be hindered.

G. Conclusion

It is believed that the foregoing discussion has unfolded the land use associations and trends of the industrial and related districts in Edmonton. It is apparent that there has been a general movement of industries and related activities towards the periphery of the city. There is also a trend to truck distribution arising from improvements in traffic efficiency and highway conditions. To summarize these locational trends, Table X and its accompanying map (Figure 25) have been prepared to indicate the footage of private sidings operated by the C.N.R. in 1954 and 1964 respectively. According to the original record of the C.N.R.,⁶² the

⁶¹Per. comm. P. Ellwood, Assistant Director of Alberta, City of Edmonton, Edmonton, October, 1966.

⁶²C.N.R., op. cit., p. 16.



entire metropolitan area is subdivided into several zones. The distribution of these zones coincides very closely to that which has just been discussed in the preceding section (compare Figures 17 and 25). As most of the required information is kept confidential by the railway company, no absolute statistics could be provided. However, the original statistics have been calculated in proportion to each other based on an index of 100 in Zone A in 1954.⁶³ They are now presented in Table X.

TABLE X

FOOTAGE OF C.N.R. PRIVATE SIDINGS IN VARIOUS ZONES IN EDMONTON IN 1954 AND 1964
(STATISTICS BASED ON AN INDEX OF 100 IN ZONE A IN 1954)

Zone	1954	1964	Increase/Decrease	
A	100.0	96.0		4.0
B	123.0	126.0	3.0	
C	330.0	276.0		54.0
D	222.0	347.0	125.0	
F	21.0	92.0	71.0	
K	0	66.0	66.0	
L	0	9.8	9.8	
N	358.0	356.0		2.0
V	130.0	200.0	70.0	
X	141.0	179.0	38.0	
Y	221.0	189.0		32.0
Z	41.5	132.0	90.5	
Total	1,687.5	2,068.8	473.3	92.0

Source: L. L. Atkinson, Research Department, C.N.R., Edmonton, 1967.

⁶³The calculated data was obtained from L. L. Atkinson, Research Department, C.N.R., Edmonton, 1967.

It can be readily recognized that between 1954 and 1964, major reduction of trackages occurred in Zones C and Y. In Zone C, the net decrease was mainly due to the relinquishment of tracks by the Department of National Defence, and the Provincial Department of Transport; this loss more than offset the considerable increase in spurs installed for other industries in the area. The loss of tracks in Zone Y was due to the removal of industries and warehouses from the city centre. This therefore further confirms the fact that the function and significance of the central wholesale-industrial district has been declining.

On the other hand, significant increase of trackages has occurred in the outer zones of the city. The oil refinery and petro-chemical industrial complex, in particular, has experienced the greatest growth in the length of spurs (see Zones D and Z). Table X and Figure 25 also confirm the fact that it was only during this ten year period that the Sheffield industrial area (Zone L) and the Union Junction Complex (Zone K) were opened up for industrial and related uses.

CHAPTER IV

CONCLUSIONS

The primary objective of this research was to analyse, through time, the effects of the railway network on the land use structure of Edmonton. Special attention has been given to the relationship between the railway tracks and industrial and associated site development. It can generally be concluded that among all the physical and economic site factors, the railway network was, and still is, a very important element which has contributed much to the urban morphology of the Edmonton metropolitan area. According to the evolution of the trackage and their land use effects, this study has been divided into several stages. It was found that in the early period of railway history, the tie between the railway pattern and industrial and warehousing sites was very strong. In more recent years, however, this intimate link has been somewhat weakened.

DEVELOPMENT PRIOR TO THE TWENTIETH CENTURY

In 1891, the first railway to Edmonton was completed. This was the Calgary-Edmonton branch of the earliest transcontinental railway -- the C.P.R. The railroad did not enter Edmonton proper, but was terminated in Strathcona, a small community on the southern bank of the North Saskatchewan River. The railway services, however, also benefited the residents of Edmonton indirectly, as cross-river transshipment was provided by two ferry operations. The advent of the railroad induced a considerable growth in both Edmonton and Strathcona. With the increase of immigrants and real estate values, the two villages entered a strong rivalry.

In Strathcona, the C.P.R. railhead became the center of urban activities, and the railway facilities played a vital role in the initial establishment of the commercial-industrial core south of the North Saskatchewan River. Agricultural processing and manufacturing plants, especially grain mills and lumber yards, were clustered in the railway vicinity. The area also became the headquarters of farm equipment and merchandise dealers. Some of these pioneering establishments can still be seen immediately north of the C.P.R. marshalling yard.

The concurrent development in Edmonton was also considerable. Although no direct railway access was provided, Edmonton was able to maintain its advantage over Strathcona. As a firmly-established fur trading post and supply base and, subsequently, as the seat of governmental administration, Edmonton continued to be larger than Strathcona. The central area of Edmonton in the 1890's was along Jasper Avenue and 101st Street. It pre-dated the coming of the railroad, and retained its dominant position although it was at some distance from the railway terminus. The railroad and the "new town" of Strathcona were therefore, not strong enough to agglomerate all the urban development, and promote any physical movement of townsite.

PERIOD FROM 1900 TO THE OUTBREAK OF THE FIRST WORLD WAR

In 1902, the Edmonton, Yukon and Pacific Railroad was constructed from a point near Fort Edmonton to the C.P.R. Station in Strathcona. In 1905, the Canadian Northern Railway reached Edmonton via Winnipeg, Saskatoon and Lloydminster. In order to service the city centre of the day, a passenger station was erected at 101st Street and 104th Avenue, and a marshalling yard and freight shed to its immediate west. This new railroad was then linked to the Edmonton, Yukon and Pacific trackage. In

1906, the latter railway succeeded in advancing to Stony Plain from the 121st Street Junction. The Edmonton and Slave Lake Railway was also completed to St. Albert and Cardiff concurrently. However, due to financial difficulties, these two railway companies were absorbed by the Canadian Northern in 1909.

The third trans-continental railway -- the Grand Trunk Pacific Railway -- entered Edmonton in 1909. Its mainline trackage and marshalling ground were established at the northern edge of the city, mainly because the unoccupied land close to the city centre was held up by the Hudson's Bay Company. To provide direct services to the community, however, the newly-established railway projected another branch to the city centre, and operated its freight sheds at 96th - 97th Streets, between 104th and 105th Avenues. The existing Canadian Northern Railway Depot was then remodelled and used as a union depot.

Such intensive development north of the river created strong competition for the C.P.R. on the southern bank. Consequently, the C.P.R. extended its trackages across the river through the High Level Bridge in 1913. The last railroad which arrived in Edmonton before the outbreak of the First World War was the Camrose Subdivision of the Canadian Northern in 1914.

The years from 1900 to 1914 were, therefore, a boom period during which the principal railway mainlines of Edmonton were interwoven into the urban community. The location of the railway network has exercised some very strong effects on the land use pattern of the city. Its influences on the initial land use structure are still apparent to-day.

The most prominent effect of the railway facilities in this early period was the consolidation of the city centre in the vicinity of

101st Street and Jasper Avenue. The Union Depot and freight sheds of the Canadian Northern and Grand Trunk Pacific Railways acted as magnets around which commercial, industrial and associated activities were clustered. While the marshalling yard of the Canadian Northern Railway behaved as the northern boundary of the central area, the C.P.R. cross-river trackages along 110th Street also set the western limit for any extensive commercial and industrial growth. As illustrated in Figure 3, the major commercial-business core appeared as elongated belts mainly along 97th Street, Jasper Avenue and 101st Street. Another concentration was found in the neighbourhood of the C.P.R. South Edmonton Yard.

The railway lines also exerted negative effects on residential land uses. Basically, residential development was located at a considerable distance from railway facilities.

On the other hand, the tie between the railroads and industrial and associated activities was markedly strong. As the railway monopolized the freight transportation field, its influence on the distribution of industries and warehouses was the most significant. Accordingly, nearly all firms which required out-of-town transport clung to the railroads. A number of private spurs were extended, particularly to the city centre area for industrial and related services. Public sidings were also provided at several industrial and related centres. Generally, there was a concentration of grain mills immediately north of the C.P.R. South Edmonton Yard. The majority of the industries and warehouses in the city centre area was engaged in food and beverages, metal, brick and wood working, printing products and clothing. Except for a few jewellery shops, bakeries and other minor establishments which serviced a rather

local market, nearly all industries and related firms were oriented essentially towards the railway facilities. It thus appeared that only very few industries and warehouses could afford to operate independently of the railway services.

Outside the urban nucleus of the day, two suburban villages sprang up along the railways. At the juxtaposition of the Canadian Northern and the Grand Trunk Pacific Railways, North Edmonton grew up as a meat packing complex. To the immediate west of the Calder Yard, the village of Calder flourished as a dormitory suburb of railway workers' families.

THE INTER-WAR PERIOD

Generally, the construction and elimination of trackages in Edmonton during the inter-war period coincided fairly closely with the alternating periods of economic depression and recovery. In 1915, the Edmonton, Dunvegan and British Columbia Railway was built to open up the Northwest Territories. In 1919-1920, the Canadian Northern and the Grand Trunk Pacific Railways were amalgamated to form the major part of the C.N.R. Many trackages were then rearranged under co-ordinated plans to avoid duplication of facilities. By 1923, the branch extending from the 121st Street Junction in Edmonton towards Stony Plain was abandoned. However, as most of these changes occurred at the outer fringe of the city, the urban land use pattern was scarcely affected.

The late 1920's saw a period of gradual economic recovery. In 1928, a new passenger station was erected by the C.N.R. on 100th Street and 104th Avenue. Meanwhile, there was also active development on the eastern edge of Edmonton. The C.N.R. re-arranged its Camrose Subdivision between Bretona and Clover Leaf; while the C.P.R. Willingdon Subdivision

was also completed. Although these two new branches did not induce any immediate industrial and related development, they did bear strong influences on the post-war establishments of the chemical and petroleum complex in this particular area.

In 1929, the Northern Alberta Railway Company was incorporated under the joint ownership of the C.N.R. and the C.P.R. to oversee the operation of the Edmonton, Dunvegan and British Columbia Railway. Then, general railway development stagnated again. In 1936 the C.N.R. dismantled its branch between the 121st Street Junction and the Union Junction.

During the inter-war period, the land use structure of Edmonton merely consolidated the growth which had emerged in the first decade of the century. Despite the increased magnitude, there was very little change in the distribution of commercial, industrial, warehousing and residential land uses. The site of the city centre was further confirmed, the railway freight sheds and stations being the most prominent features. In addition, the general westward extension of the central commercial core towards the C.P.R. tracks along 110th Street was more readily recognised. Although the use of motor vehicles and trucks had already been introduced into the city, they were used essentially for local purposes only. On the other hand, the railway was still the most economic and desirable means of out-of-town transportation. Consequently, proximity to railway services was still an important consideration in the choice of industrial and associated sites. The tie between the railway trackage and industrial and associated sites then remained significant.

A few distinctive warehousing-industrial areas were characterized by the concentration of certain types of activities. The meat packing

complex of North Edmonton, for instance, experienced considerable growth with more meat processing plants, tanneries and associated companies. Other similar outstanding areas included the concentration of flour mills immediately north of the C.N.R. City Yard, and the clothing industrial nucleus near 104th Street and 102nd Avenue.

THE POST-SECOND WORLD WAR PERIOD

The post-Second World War population and economic boom opened a new era in the history of Edmonton. Railway transportation, likewise, has undergone a tremendous growth. From 1950 to 1965, there was a 32 per cent increase in the total volume of through and local traffic. While many of the existing industrial and warehousing firms were under rapid expansion, new establishments were also introduced into the city. Development of the physical trackages was, therefore, mainly in the form of industrial sidings. The length of private spurs operated by the C.N.R. in 1954 was 194,667 feet compared with 239,051 feet in 1965.

As commercial and industrial development proceeded at an unprecedented rate, there was a general lack of proper guidance in their site selection in the immediate post-war years. These activities, particularly industrial premises, tended to locate "wherever large enough blocks of land happened to be available, without proper consideration of all pertinent factors."¹ In the same manner, railway spurs were extended into these areas bit by bit, dissecting the urban community. Subsequently these unco-ordinated piecemeal developments resulted in the

¹Edmonton Journal, August 17, 1950.

formation of several scattered industrial pockets, which hindered the growth of certain types of land uses. The industrial-warehousing zone at the former site of the American military personnel quarters, for instance, inhibited the development of residential land use in the surrounding area. It was only after a serious struggle between the city planners and the industrialists that this area of admixed land uses was eliminated and redeveloped as an institutional-residential area.

In view of the general growth of the urban community and the heavy demand for industrial and associated lands, the city planners began to realize that proper land use planning was essential for the entire metropolitan area. Similarly, the railway companies decided to co-ordinate their respective facilities under the most efficient method of operation. In 1952, the so-called "Planned Expansion Scheme" of Edmonton was agreed between the C.N.R. and the City of Edmonton. This comprehensive redevelopment plan involved street closings, subway constructions, land exchanges and trackage elimination and alterations.

In drafting the "Planned Expansion Scheme" and planning for industrial and related land uses, the city planners evaluated many physical site factors. Although the railway was still one of the important elements in their consideration, it could no longer monopolize the total transportation field. Other site factors such as the amount of space, price of land, provision of utilities, proximity to labour force, home-work traffic distance and accessibility to related activities have also played a contributing role in the selection of industrial and associated sites.

From the transportation viewpoint, the dominant influence of the

railroads has been markedly challenged by other means of movement. With improved highway conditions, truck services have become another popular means of cross-country transportation. They provide faster, more flexible and more direct services than the railways. In 1965, the Provincial Highway Department of Alberta recorded that an average of 5,294 trucks entered or departed from Edmonton daily. In spite of the increased absolute traffic volume then, the importance of the railways has declined relatively in the total freight transportation field.

This post-war changing transportation demand has had some strong effects on the land use pattern of Edmonton. Industrial and associated land uses, in particular, are more sensitive to this shift of traffic means. Instead of being oriented towards the railway lines only, industries and warehouses began to seek convenient highway accesses as well. Their distribution in the city was, therefore, no longer confined to the central area and in the railway yard vicinity, but was scattered into peripheral locations. Consequently, the tie between the railways and industrial and associated sites has been somewhat weakened.

In the early-established industrial-warehousing areas, transportation facilities became out-of-date. The road systems in particular, were not efficient enough for truck movements. The central area and the industrial-warehousing belt close to the C.P.R. South Edmonton Yard, are typical examples of such functional obsolescence. As in many North American cities,² more and more industries and warehouses have been moving out of these blighted areas, searching for more efficient

²Read, for example, C. C. Colby, "Centrifugal and Centripetal forces in Urban Geography," in H. M. Mayer and C. F. Kohn (ed.), Readings in Urban Geography, Chicago, 1949, pp. 331-345.

circulation routes. New establishments, likewise, prefer peripheral sites. Industrial and associated development in Edmonton is, thus, repeating a widespread trend to peripheral flight.

In 1950, the City Council rezoned the Hudson's Bay Golf Course Reserve along 121st Street for industrial use. This site was later developed as a wholesale-warehousing area. To accommodate a number of newly-established food manufacturing plants, tanneries and associated firms, the North Edmonton meat packing complex was enlarged on both sides of the C.N.R. trackages. In 1951, the Coronet industrial estate in South Edmonton was also opened. This area and its southern extension is at present dominated by firms servicing the oil drilling industry, and by construction and wood working businesses. Late in 1951, development of the Delton industrial estate and the land immediately east of the Calder Yard began. This zone was subsequently occupied by a number of lumber yards and metal fabricating plants.

Another new industrial-warehousing area which grew up after the Second World War comprises the Huff-Bremner, Dominion and Brown estates on the north-western edge of the city. Extensive railway lead tracks were constructed in 1954, 1957 and 1961 respectively. To-day, the majority of the firms in this zone are engaged in the wholesaling of food, and industrial and farm implements and the manufacturing of non-metallic mineral products. A few of the premises here were relocated from the city centre area.

From 1950, large scale industrial development took place at the eastern outskirts of Edmonton. Undoubtedly, this area has many advantages for industrial land use, proximity to both the C.N.R. and C.P.R. being one of the strongest factors. This area was eventually established

as a petroleum-chemical complex. The most recently developed industrial areas are the Bonaventure industrial estate and the Strathcona Industrial Park. The latter project is now under development according to a comprehensive plan.

It should be pointed out here that although the importance of railway transportation seemed to be declining in the freight transportation field, all the above-mentioned industrial and associated areas in Edmonton are found along railway trackages. None of these areas is, therefore, completely independent of railway services, although they may contain many individual businesses which make little use of the railways.

The importance of the railways in the selection of industrial and associated sites is also reflected by the completed questionnaires. Generally, firms which indicated that railway accessibility is still an essential requirement are the oil refineries, chemical plants, meat packing firms, manufacturing companies of metal fabrication and non-metallic minerals, and building-material wholesalers. The trucking-warehousing firms, likewise, are significant customers of the railway companies. In addition, the automobile dealers reported that railway tri-level cars are their most efficient and economic means of shipping in automobiles. Most of these businesses also indicated that rail and road transportation are more or less equally important to their operations. They are, therefore, exclusively found on railway sites, serviced by private industrial sidings.

There are some businesses which prefer using trucks as their major means of movement. Railways have also been used by them but to a

less extensive degree. These activities are mainly engaged in servicing the oil drilling industry, in construction, oil equipment assemblage, wood working and printing. As most of their trade areas are confined to the region surrounding Edmonton, their operations involve only relatively short haulage transportation. Truck service is, therefore, their most desirable means of movement. These firms are generally located in peripheral areas with easy access to highway outlets. Proximity to railway sidings is thus not an essential requirement in their site selections.

The last category of industrial and associated firms contains those which do not make use of the railways at all. Such firms usually service the local and even neighbourhood markets. Examples are provided by local bakeries, minor printing shops and small food processing and manufacturing firms. Their choice of sites is, therefore, independent of the railway trackage. In many cases, proximity to customers and related businesses has been the major factor in their decisions.

The business questionnaire analysis also shows that the above-mentioned relationship between the railways and industrial and associated firms is unlikely to change in the foreseeable future. The function of the railways will remain as a long haulage carrier for relatively bulky and heavy goods. The present industrial-warehousing land use pattern is therefore securely based, though the drift from the central area appears certain to continue.

OTHER RELATED FACETS OF THE STUDY

Another facet of this study is the land use effects of the administrative policies of the railway companies in Edmonton. It was found that the railway companies at present own a total of 1,393 acres of land in the metropolitan area. By leasing most of their surplus lands for industrial and related uses (totally 299.7 acres), the railway companies themselves encourage the growth of a lineal industrial and warehousing land use pattern. In addition, the C.P.R. holds direct control of the development of the Strathcona Industrial Park through its real estate subsidiary -- Marathon Realty Company Limited. Last but not least, the four-miles switching limit and car interchanging services among the railway companies is another strong cultural force which has affected the distribution of industrial and associated businesses in Edmonton.

BIBLIOGRAPHY

- Alberta, Department of Highways. Official Road Maps, Edmonton, 1966.
- _____, _____. Annual Report, 1965, Edmonton, 120 pp.
- _____, _____. Average Annual Daily Traffic Record, unpublished record, Edmonton, 1965, 1 pp.
- Alberta Motor Transport Association. Alberta Shippers Guide, Edmonton and Calgary, June 1965, 222 pp.
- Alberta. Report of the Royal Commission on the Metropolitan Development of Calgary and Edmonton, Edmonton, 1956, (in sections).
- Alexandersson, G. The Industrial Structure of American Cities, University of Nebraska Press, Lincoln, 1956, 134 pp.
- Andrews, R. B. Urban Growth and Development, Simmons and Boardman, New York, 1962, 420 pp.
- Bartholomew, H. Land Use in American Cities, Harvard University Press, Cambridge, 1955, 196 pp.
- Blue, J. Alberta: Past and Present, Historical Publishing Company, Chicago, 1924, 3 volumes.
- Bone, P. T. When the Steel Went Through, MacMillan Company of Canada Limited, Toronto, 1947, 180 pp.
- Bredo, W. Industrial Estates -- Tool for Industrialization, International Industrial Development Centre, Stanford Research Centre, New York, California, 1960, 240 pp.
- Canada, Dominion Bureau of Statistics. Year Book, 1950, 1960, 1965, Ottawa, various years.
- Canadian National Railway. An Industrial Survey of the Edmonton Area, Alberta, Montreal, 1960, 93 pp.
- _____. Annual Report, Montreal, 1966, 35 pp.
- _____. Canada, Atlantic to Pacific, Montreal, 1924, 256 pp.
- _____. C.N. and Edmonton, Edmonton, 1966, 8 pp.
- _____. Edmonton Terminal Study, General Report, Edmonton, 1966, (in sections).

- _____. Freight Equipment Catalogue, Montreal, 1966, 31 pp.
- _____. Report on Expansion of Railway Facilities and Re-arrangement of Trackage in Conjunction with a Pronounced Agreement with the City of Edmonton, unpublished record, Winnipeg, 1951, 6 pp.
- _____. Thumbnail History of Railroad Building in Canada, Montreal, unpublished pamphlet, 17 pp.
- Canadian Pacific Railway. Canadian Pacific Freight Car Equipment, Transportation Department, Edmonton, 1966, 13 pp.
- _____. Master Data Book, unpublished record, Edmonton, 1966, in sections.
- _____. Spencer, No. 265, Montreal, 1961, 30 pp.
- Canty, D. "The Fight to tame the Urban Freeway Takes a Positive New Turn," Architectural Forum, Urban America, New York, October, 1963, pp. 69-73.
- Carlson, D. B. "Can Transportation Systems Put Our Cities Back Together Again?", Architectural Forum, October, 1963, pp 62-67.
- Cashman, A. W. The Edmonton Story, 1923, Institute of Applied Arts, Edmonton, 1956, 279 pp.
- _____. More Edmonton Stories, Institute of Applied Arts, Edmonton, 1958, 261 pp.
- Chapin, F. S. Urban Land Use Planning, University of Illinois Press, Urbana, 1965, 498 pp.
- Charlesworth, E. A Local Example of the Factors Influencing Industrial Location, Geographical Journal, Vol. 91, 1938, pp. 340-351.
- Clark, C. "Transportation, Maker and Breaker of Cities," Town Planning Review, Vol. 28, 1958, pp. 237-250.
- Colby, C.C. "Centrifugal and Centripetal Forces in Urban Geography," Annals, A.A.G., Vol. 23, 1933, pages 1-21.
- Corbett, E. A. McQueen of Edmonton, Ryerson Press, Toronto, 1934, 125 pp.
- Curtis, G. W. "Edmonton," Western Miner, Vol. 24, No. 10, October, 1951, pp. 38-40.
- Dant, N. "Edmonton -- Practical Results of Planning Measures Since 1950," Community Planning Review, Vol. 4, 1954, pp. 31-40.

Dempsey, H. A. Historical Sites of the Province of Alberta, Publicity Bureau, Edmonton, 1952, 56 pp.

Douglass, P. and McMahon, A. (ed.). Industrial Parks -- Development and Management, Centre for Practical Politics, Rollins College, Winter Park, Florida, 1959.

Ducey, B. C.N.R. Stations in Edmonton, unpublished records, C.N.R., Edmonton, 1964, 12 pp.

Edmonton Bulletin. Edmonton South Side, April 30, 1920.

_____. History of Grain Growing in the Edmonton District, January 24, 1902.

_____. Edmonton, To-day and Ten Years Ago, May 5, 1923.

Edmonton, City Commissioners Department. City of Edmonton By Laws, City Hall, Edmonton, 1905, 1907, 1933 and 1952.

_____, _____. Council Minutes, City Hall, Edmonton, October, 1951.

_____, _____. Memorandum of Agreement made and entered into the 8th day of August, A.D. 1952, between the City of Edmonton and the C.N.R., Edmonton, 1952, 14 pp.

_____, City Engineering Department. The City of Edmonton, 142nd Street Subdivision, unpublished map, 1947.

_____, City Planning Department. Alberta Laundry and Dry Cleaners Plant, unpublished record, 1958, 4 pp.

_____, _____. Draft General Plan, 1963, Five parts.

_____, _____. Factors Affecting Land Development in Northeast Edmonton, 1966, 28 pp.

_____, _____. Historical Map of Edmonton, (Northside and Southside), 1790 - 1900, map, City Hall, 1958.

_____, _____. Urban Renewal Study, 1965-1966, Five Parts.

_____, District Planning Commission. An Economic Base Survey for the Edmonton Metropolitan Area, Edmonton, 1958, Two Parts.

_____, Industrial Development Department. Industrial Directory, Manufacturers and Products, Edmonton, 1961, 43 pp.

Edmonton Journal. Edmonton, August 17-18, 1950; May 26, 1952.

- Esdaile Press Limited and McDermid Engraving Company Limited, Edmonton -- Alberta's Capital City, Edmonton, 1914, 201 pp.
- Fleming, S. Report on Surveys and Preliminary Operations on the C.P.R. up to 1877, MacLean, Rogers and Company, Montreal, 1877, 431 pp.
- Gibson, J. S. Physical Site Factors and Land Use, Calgary, unpublished M.A. thesis, University of Alberta, 1965.
- Guttenberg, A. Z. "Urban Structure and Urban Growth," Journal of the American Institute of Planners, May, 1960.
- Hartshorne, R. Perspective on the Nature of Geography, Rand-McNally, Chicago, 1959, 201 pp.
- Haig, R. M. Major Economic Factors in Metropolitan Growth and Arrangement: Part I. Regional Survey for New York and Its Environs, New York, 1927, 113 pp.
- Henderson's, Edmonton Directory, Winnipeg, 1912, 1939 and 1966.
- Hoppers, A. B. and Kearney, T. Synoptic History of Organization, Capital Stocks, Funded Debt and Other Information, C.N.R. Accounting Department, Montreal, 1962, 800 pp.
- Horan, J. W. West, Northwest -- A History of Alberta, Northgate Books, Edmonton, 1945, 184 pp.
- Jackson, J. N. Surveys for Town and Country Planning, Hutchinson University Library, 1963, 192 pp.
- Keeble, L. Principles and Practice of Town and Country Planning, The Estates Gazette, London, 1959, 338 pp.
- Krebs, W. A. "Trends in Industrial Park," Industrial Development and Manufacturers Record, June, 1959, pp. 42-47.
- Lee, T. R. A Manufacturing Geography of Edmonton, Alberta, unpublished M.A. thesis, University of Alberta, 1963, 117 pp.
- Lovett, H. A. Canada and the Grand Trunk, 1829 - 1924, Toronto, 1924, 241 pp.
- Mayer, H. M. The Railway Pattern of Metropolitan Chicago, Ph.d. Dissertation, University of Chicago, 1943, 128 pp.
- Mayer, H. M. and Kohn, C. F. (ed.), Readings in Urban Geography, University of Chicago, Chicago, 1959, 623 pp.
- MacCrae, A. O. History of the Province of Alberta, Western Canada History Company, 1912, 2 volumes.

McDonald, G. H. Edmonton, Fort -- House -- Factory, Douglas Printing, Edmonton, 1959, 236 pp.

McCauley, M. Biographies of Western Pioneers and History of Settlement of Western Canada, Northern Alberta Pioneers and Old Timers Association, Volumes 1 and 2, Edmonton, 1947, 390 pp.

McGregor, J. G. Blankets and Beads, Institute of Applied Art, Edmonton, 1956, 278 pp.

_____. Edmonton Trader, McClelland and Stewart, Toronto, 1963, 262 pp.

McIntosh, J. R. "The City of Edmonton," The Beaver, Hudson's Bay Company, Winnipeg, Vol. 6, March 1924, pp. 211-213.

Mitchell, R. B. and Rapkin, C. Urban Traffic, A Function of Land Use, Columbia University Press, New York, 250 pp.

Mueller, E., Wilken, A. and Wood M. Location Decisions and Industrial Mobility in Michigan 1961, Survey Research Series Publication No. 22, Institute for Social Research, University of Michigan, 1961, 115 pp.

Mundy Blueprint Company, Map of the Twin Cities -- Edmonton and Strathcona, 1911, map.

National Real Estate Investor. Industrial Development Features, Collection of Six Articles, April, 1962, pp. 22-23.

O'Dell, A. C. Railways and Geography, Hutchinson University Library, London, 1956, 198 pp.

Pegrum, D. F. Transportation and the Location of Industry in Metropolitan Los Angeles, California, 1963, 46 pp.

Renner, G. T. "Geography of Industrial Localization," Economic Geography, Vol. 23, No. 3, July 1947, pp. 165-187.

Rhyason, D. Exercise Report, Phase III, Industrial Land Use Planning, unpublished report, University of Alberta, Edmonton, 1967, 20 pp.

Sargent, C. "Land for Industries," Urban Land, Vol. 23, No. 2, February 1964, pp. 3-10.

Smailes, A. E. The Geography of Towns, Hutchinson University Library, London, 1964, 166 pp.

Springer, M. R. "Development of Local Industrial Districts," Arizona Review, Vol. 11, No. 8, August, 1962, pp. 11-15.

Stephenson, C. M. Industrial Sites -- A Community Problem, Government Relations and Economic Staff, The Tennessee Valley Authority, Knoxville, Tennessee, 1961, 18 pp.

Strathcona Board of Trade. Strathcona -- The Railway Town and Manufacturing Centre of Northern Alberta, Strathcona, 1903, 20 pp.

Suski, J. G. Edmonton -- Short History, General Description of the Area, Edmonton, 1965, 82 pp.

Twin Cities Metropolitan Planning Commission, Selected Determinants of Industrial Development, St. Paul, Minn., 1962, 30 pp.

Tye, W. F. Canadian's Railway Problem and its Solution, Paper read before the Canadian Society of Civil Engineers, January 18, 1917, Montreal, 1917, 44 pp.

Vernon, R. Metropolis 1985, Harvard University Press, Cambridge, 1959, 25 pp.

Wingo, L. Transportation and Urban Land, Washington: Resource for the Future, 1961.

_____, and Perloff, "The Washington Transportation Plan," Papers of the Regional Science Association, Vol. 7, 1961, pp. 249-262.

Wonders, W. C. "Edmonton Alberta: Some Current Aspect of Its Urban Geography," Canadian Geographic, No. 9, 1957, pp. 7-21.

APPENDIX A

BUSINESS QUESTIONNAIRE

1. Name of firm _____
2. Your firm is: (Please tick. If there be more than one function, please tick all the relevant ones.)
- A. Manufacturing _____
 - B. Processing _____
 - C. Wholesaling _____
 - D. Warehousing _____
 - E. Servicing _____
 - F. Others (specify) _____

Main Products are:

- A. _____
- B. _____
- C. _____

3. A. When was your firm established in Edmonton? _____
- B. When was your firm established at present site? _____
- C. If the present site is not the original site,
- 1. please state the former address(es) of your firm in Edmonton and the period(s) of time when it/they was/were occupied:

Period(s) of time	Former site(s) (if any) Address(es)
_____	_____
_____	_____
 - 2. among all the reasons that have caused the moving of your firm in Edmonton, (i.e. changing of address, if any,)
 - a. was accessibility to rail transport an essential factor?
(tick) YES _____ NO _____
 - b. was accessibility to road transport an essential factor?
(tick) YES _____ NO _____
 - c. accessibility to rail transport was: (please tick)
 - (1) the most important reason _____
 - (2) one of the important reasons _____
 - (3) a fairly important reason _____
 - (4) a rather unimportant reason _____
 - d. accessibility to road transport was: (please tick)
 - (1) the most important reason _____
 - (2) one of the important reasons _____
 - (3) a fairly important reason _____
 - (4) a rather unimportant reason _____
 - 3. among all the reasons that have caused the addition of site(s) of your firm in Edmonton, (e.g. addition of branch office(es), if any,)
 - a. was accessibility to rail transport an essential factor?
(tick) Yes _____ NO _____

(tick) YES NO

c. accessibility to rail transport was (please tick)

(1) the most important reason

(2) one of the important reasons

(3) a fairly important reason

(4) a rather unimportant reason

d. accessibility to road transport was (please tick)

(1) the most important reason

(2) one of the important reasons

(3) a fairly important reason

(4) a rather unimportant reason

D. Was the present site occupied by business before? YES _____ NO _____
If yes, what kind of business was it? (Please be as specific as possible)

4. In the selection of your original site in Edmonton,

A. was proximity to rail transport an essential requirement?

(Tick) YES NO

B. was proximity to road transport an essential requirement?

(Tick) Yes NO

C. proximity to rail transport was: (please tick)

1. the most important requirement

2. one of the important requirements

3. a fairly important requirement

4. a rather unimportant requirement

D. proximity to road transport was: (please tick)

1. the most important requirement

2. one of the important requirements

3. a fairly important requirement

4. a rather unimportant requirement

5. When your firm was first established in Edmonton, the primary means of transport was: (Please indicate by numbers in order of importance; using (1) to represent the most important means, (2) to represent the next important one etc.)

Rail ()

Truck ()

Horse ()

Boat ()

Aeroplane ()

Other ()

6. Has this order of importance of transport changed since then?

(Tick) YES NO

If yes, what are the changes? When and why?

Period(s) of time	Change(s)	Reason(s)
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[illegible]

1. The first step is to identify the problem. This involves understanding the current situation and what needs to be improved.

7. If rail services have been a means of transport for your firm at the present site, please state:-

A. When was the first spur track constructed to your site: (Tick)

1. before the establishment of your firm _____
2. after the establishment of your firm _____
3. at about the same time when your firm was established _____

B. the agent(s) who paid for the expenses of the spur track(s) construction:- (Tick)

1. your firm _____
2. the former firm that occupied the site _____
3. Federal Government _____
4. Provincial Government _____
5. Canadian Northern Railway Company _____
6. Canadian National Railway Company _____
7. Grand Trunk Pacific Railway Company _____
8. Canadian Pacific Railway Company _____
9. Northern Alberta Railway Company _____
10. shared parties (specify) _____
11. others (specify) _____

C. the number of cars in service at specific periods of time:-

<u>Periods of time</u>	<u>Number of cars in service</u>
1906 to 1920	_____ per annum
1921 to 1945	_____ per annum
1946 to 1955	_____ per annum
1956 to 1960	_____ per annum
1961 to 1966	_____ per annum

D. the approximate cost of railway transport services at present:

\$ _____ per annum.

Percentage of this railway transport cost to the total cost of transport services: _____%

E. The material transported by rail at present:

<u>Raw Material</u>		
<u>Main Kinds</u>	<u>Amount in lbs. or tons per annum</u>	<u>Percentage of total amount needed</u>
_____	_____	_____ %
_____	_____	_____ %
<u>Finished Products</u>		
<u>Main Kinds</u>	<u>Amount in lbs. or tons per annum</u>	<u>Percentage of total amount shipped</u>
_____	_____	_____ %
_____	_____	_____ %

8. Is there any likelihood of changing the primary means of transport services of your firm in near future? (Tick) Yes _____ NO _____
If yes,
A. When do you expect the change? _____
B. What form of transport will it be _____
C. Why? (e.g. The new form of transport is cheaper and more convenient) _____

9. If re-siting is ever required,
A. Would proximity to rail transport be an essential requirement?
(Tick) YES _____ NO _____
B. Would proximity to road transport be an essential requirement?
(Tick) YES _____ NO _____
C. Proximity to rail transport in your opinion would be: (Tick)
1. the most important requirement _____
2. one of the important requirements _____
3. a fairly important requirement _____
4. a rather unimportant requirement _____
10. Finally, if re-siting is ever required, accessibility to rail transport and accessibility to road transport in your opinion: (Tick)
A. would be more or less equally important _____
B. would not be equally important; rail transport accessibility being a more dominant requirement _____
C. would not be equally important; road transport accessibility being a more dominant requirement _____

- END -

August, 1966,
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